Automotive industries

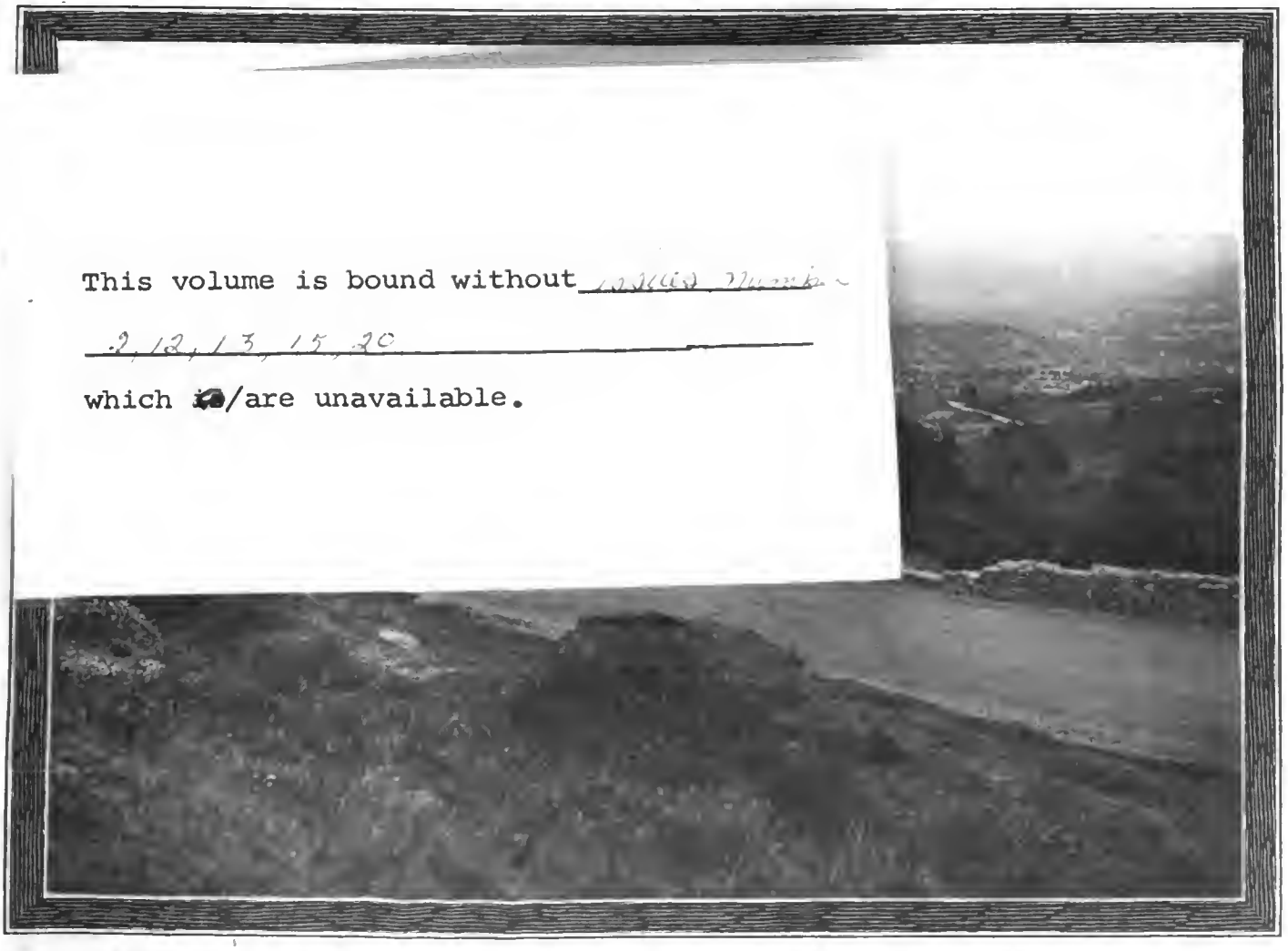
THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, JULY 6, 1905—CHICAGO NO. 1

OVER THE 1905 GORDON BENNETT COURSE.

BY W. F. BRADLEY, SPECIAL REPRESENTATIVE OF THE AUTOMOBILE.

CLERMONT FERRAND, June 14.—Herbert Lyttle hooted viciously outside the hotel, for it was 6:30 A. M., or just fifteen minutes past the time appointed for the start of a survey of the Gordon Bennett course. Dingley jumped up beside him, the car doors were banged, and the 30-horsepower Pope-Toledo touring automobile rushed up the steep hill leading to the course. On board, in addition to the two American drivers, are C. B. Myers, of the Diamond Rubber Co., the interpreter for the Pope team, and the representative of THE AUTOMOBILE.. The course has been entirely closed to racing cars for the last fortnight, and the American drivers, who arrived too late to become thoroughly acquainted with the circuit before this prefectorial decision was taken, have now to be content with daily practice over the circuit in their touring car, running the racers only on a quiet stretch of road near the town. Lyttle has only been round the course three times in the racer, and Dingley was



A TYPICAL TURN ON THE GORDON BENNETT COURSE—BEFORE THE DESCENT TO CLERMONT, SEEN IN THE DISTANCE.

THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, JULY 6, 1905—CHICAGO NO. 1

OVER THE 1905 GORDON BENNETT COURSE.

BY W. F. BRADLEY, SPECIAL REPRESENTATIVE OF THE AUTOMOBILE.

CLERMONT FERRAND, June 14.—Herbert Lyttle hooted viciously outside the hotel, for it was 6:30 A. M., or just fifteen minutes past the time appointed for the start of a survey of the Gordon Bennett course. Dingley jumped up beside him, the car doors were banged, and the 30-horsepower Pope-Toledo touring automobile rushed up the steep hill leading to the course. On board, in addition to the two American drivers, are C. B. Myers, of the Diamond Rubber Co., the interpreter for the Pope team, and the representative of THE AUTOMOBILE.. The course has been entirely closed to racing cars for the last fortnight, and the American drivers, who arrived too late to become thoroughly acquainted with the circuit before this prefectorial decision was taken, have now to be content with daily practice over the circuit in their touring car, running the racers only on a quiet stretch of road near the town. Lyttle has only been round the course three times in the racer. and Dingley was

A TYPICAL TURN ON THE GORDON BENNETT COURSE—BEFORE THE DESCENT TO CLERMONT, SEEN IN THE DISTANCE.

on his third round when the accident occurred at Rochefort the day before the final closing of the circuit, as reported at the time.

Clermont lies in a hollow, picturesquely surrounded by a circle of dome-shaped hills, the most important of which, the Puy de Dôme, rises to a height of 5,000 feet above sea level. About five miles out of town the Four Roads are struck, this being the angle of the circuit nearest to Clermont. We climb up on a road winding sharply round and round the hillside, and having a grade of ten per cent. and a width of about 32 feet.

The first impression of the circuit is almost one of terror. No sooner is the car round a sharp bend to the right than she is swung round to the left, then back again to the right, only to be followed a second later by another sharp turn to the left. All the time the road is mounting, the round topped Puy de Dôme being right in front, as if blocking the way; and when La Baraque is reached a height of 2,560 feet has been attained. Below, to the left, lies the valley and in it the town of Clermont. The view is magnificent, but it does not keep out the thought that if a car went over the edge of the road it would have a drop of several thousand feet.

From La Baraque the road is comparatively straight for a few miles, and the driver can obtain a few seconds' rest. At no point, however, can one see far ahead, for although the ground is still rising, an occasional dip in the road shuts off the view from time to time.

On this first fast portion of the circuit—on the Plateau de Laschamp—have been erected the official grand stands, about ten miles from Clermont. The spot is a most isolated one, not a house being in sight, and this morning the only persons to be seen were a few workmen engaged on the grand stands. Each side of the road is strongly barricaded for a couple of miles before and beyond the grand stands, and opposite the starter's box a light foot bridge unites the two sides of the road.

In the villages of Rochefort and Pontgibaud foot bridges have also been constructed over the road, and these, with the exception of an old Roman bridge passing under the road, and which has recently been dug out and rendered fit for use, are the only means of communication between the outside and the inside of the course. Access to the course on the day of the race will be absolutely forbidden to all except a very small number of officials.

From the grand stands to the top of the Col de la Moreno, a distance of three or four miles, the road is steeply ascending, rising in this short distance from 957 meters to 1,065 meters. This is the highest point on the course, and from it a splendid view is obtained of the surrounding country. In the distance rises dome upon dome, all of them covered with grass up to their summits, hidden here and there by a patch of snow.

Although Clermont is situated in the south of France, in a land of vines and sunshine, this portion of it unites with southern beauties all the features of a northern clime.

Now the road descends, and continues on the down grade for five miles. A couple of miles of straight road follows. Then the car is sharply whizzed round to the right, and before the occupants of the tonneau have slid back to their respective positions a sharp bend to the left throws them all together again in the opposite corner of the car. No less than ten sharp turns, all of them of a most difficult nature, and occurring on 8 to 10 per cent. grades, are encountered between the Col de la Moreno and the village of Rochefort.

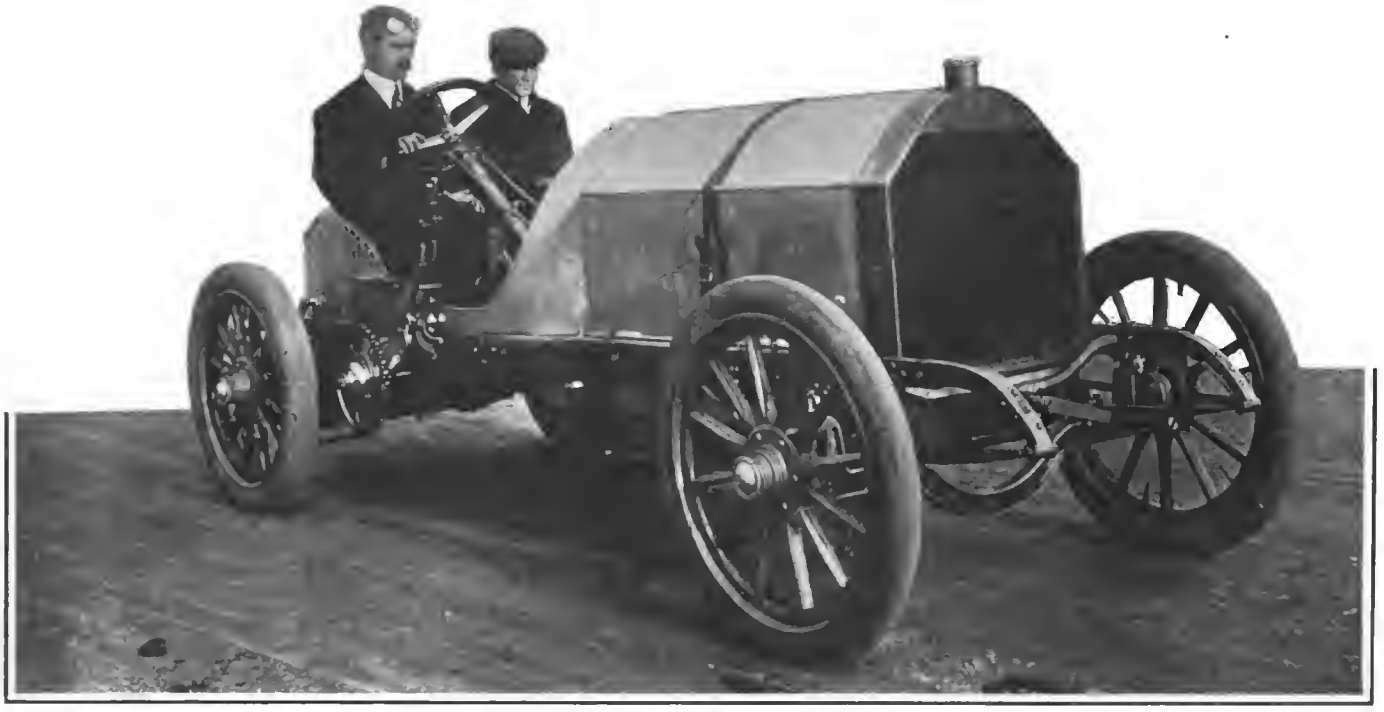
It is here that the time control on the circuit has been made. There is, however, no neutralization, all the cars will be held up for five minutes and then started off from the same point. The road through the village is but twenty feet wide, the descent is from 4 to 9 per cent., and at no point can the chauffeur see more than twenty yards ahead. Each side of the track is strongly barricaded by palisadings 5 feet in height, communication on the day of the race being assured by a temporary foot bridge.

Immediately on leaving the village the most difficult turning of the whole circuit has to be negotiated. When this track was discovered many of the most skilled French drivers failed to get round the Rochefort bend on the first trial.

Lyttle tackled it in fine style this morning.

He had just got around the V-shaped bend and was straightening out for the 100 yards straight run when the wheels skidded on the wet ground, the engine almost stalled, and the thought came, "Will he be able to hold the car on this greasy 10 per cent. grade?" In a fraction of a second, however, the car had picked up speed again, and before the occupants of the tonneau had wedged themselves again into their own corners it was whirling around another bend.

In the village of Laqueuille, situated at an altitude of 1,026 meters, there is a spacing control, and the same protective measures have been taken here as at Rochefort. On the day of the race every car will be



JOSEPH TRACY AND AL POOLE, HIS MECHANICIAN IN THE LOCOMOBILE RACER ENTERED BY DR. HAROLD E. THOMAS OF CHICAGO IN THE GORDON BENNETT RACE, AND WHICH WILL START NO. 18.

POPE-TOLEDO GORDON BENNETT TEAM PHOTOGRAPHED ON THE COURSE.

G. H. DINGLEY AND J. T. TATTERSALL, HIS MECHANICIAN, ON THE AUVERGNE COURSE IN THE POPE-TOLEDO RACER ENTERED IN THE GORDON BENNETT RACE BY C. T. MUIR, OF LEXINGTON, KENTUCKY, AND WHICH STARTS NO. 12.

HERBERT H. LYTTLE AND WILLIAM KNIPPER, HIS MECHANICIAN, PASSING THROUGH ROCHEFORT IN THE POPE-TOLEDO RACER ENTERED BY COL. ALBERT A. POPE, OF HARTFORD, CONNECTICUT, AND WHICH STARTS NO. 6.

LIST OF STARTERS IN THE GORDON BENNETT RACE ON THE AUVERGNE CIRCUIT, JULY 5.

No.	Driver.	Car.	Country.	No.	Driver.	Car.	Country.	No.	Driver.	Car.	Country.
1	Thery....	Richard-Brasier.	France	7	Callois.....	Richard-Brasier	France	13	Duray....	De Dietrich	France
2	Earp.....	Napier.....	England	8	Rolls.....	Wolseley	England	14	Bianchi ..	Wolseley	England
3	Jenatzy ..	Mercedes	Germany	9	De Caters..	Mercedes	Germany	15	Werner ..	Mercedes	Germany
4	Lancia ...	Fiat.....	Italy	10	Cagno.....	Fiat.....	Italy	16	Nazzari...	Fiat.....	Italy
5	Braun....	Mercedes.....	Austria	11	Hyeronimus	Mercedes.....	Austria	17	Burton...	Mercedes	Austria
6	Lyttle....	Pope-Toledo....	America	12	Dingley....	Pope-Toledo....	America	18	Tracy....	Locomobile	America

stopped and a control card given to the mechanic. If an interval of less than three minutes separates him from the previous vehicle, the car will be held in the control until that period has elapsed.

A short distance past the village of Laqueuille is the railway station where a single track crosses the road. Here is the first of the special wooden bridges constructed over the grade crossings. The official tests took place a few days ago, when the bridges were crossed at 60 miles an hour. It was found that the junctures with the road were rather too abrupt, and they are now being made more gradual by means of a layer of cement.

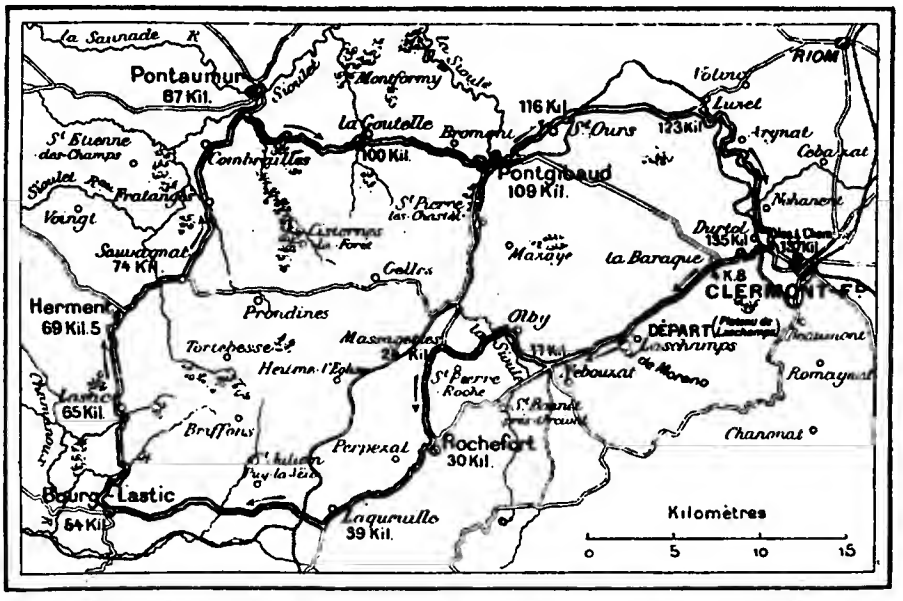
For a distance of 8 miles after the bridge the road is comparatively good, and the 30-horsepower Pope-Toledo gave some good indications of speed.

Suddenly this good piece of road has to be left, for at an angle on which stands a large stone figure of the Virgin Mary the course almost doubles back on itself, forming a perfect V. As the road is here almost level, this particular spot offers no great difficulty. All the drivers approach it at top speed, brake rapidly, swing round, and pick up speed again without the loss of a second.

From this point (Bourg-Lastic) to Herment the road is narrow, being at many points not more than 22 feet wide. It is one of the by-roads of the district, and in order to put it into a fit condition for the race much repairing has been necessary. In many places stones still lie loose on the surface, and as the sharp bends were tackled the rear wheels often skidded, throwing up a shower of dust and fine stones.

Between Herment and Pontaumur the altitude does not vary considerably, being from 2,310 feet to 1,650 feet. The sharp curves, however, are never absent, and Dingley, who is acting as mechanician, fulfils the Prefect's recommendation to "use the horn abusively" in a wholehearted manner. Almost all of the time he is half out of his seat to get a glimpse around the bend, and a "Right away" is uttered as soon as the next strip of road is seen to be clear.

The precaution is necessary, for going sharply around a bend on a 5 per cent. down grade, a flock of sheep is found to be blocking the road. The car is pulled up in about 18 feet, and all danger avoided. At another point the steam rollers and apparatus for tarring the road are suddenly



SKETCH MAP OF AUVERGNE CIRCUIT PREPARED BY LA VIE AUTOMOBILE.

TRIUMPHAL ENTRY OF THERY THROUGH THE GATES OF PARIS ON HIS RETURN FROM WINNING THE G. B. ELIMINATION TRIALS.

Erecting the Grandstand on the Plateau de la Laschamps.

Pope-Toledo Racer Crossing Temporary Bridge over Railroad near Laqueuille.

Sprinkling the Course with Tarry Fluid, which Brushes Distribute Evenly.

Temporary Foot Bridge over the Course in the Town of Rochefort.

VIEWS ALONG THE AUVERGNE CIRCUIT IN FRANCE, SHOWING INTERESTING FEATURES OF THE PREPARATIONS FOR THE INTERNATIONAL GORDON BENNETT RACE, TO BE HELD JULY 5.

come upon. Again the value of a powerful brake is manifested and skilful driving gets the car by with a half-inch margin on each side.

The natives of this isolated country have caught the spirit of automobilism. Everybody is enthusiastic. The women stand and smile by the roadside as the cars rush by; the road men doff their caps at the approach of a racing machine; the farm men pull quickly to one side on hearing the sound of a horn; only the wild sheep dogs, so common on the mountainside, remain untamed.

In spite of the vehement calls of its owner, a fierce brute will from time to time rush barking into the middle of the road. As was the case this morning, the result is generally a quick cry of danger, followed immediately by a loud howling and yelping which is a minute after lost in the distance.

The police and military authorities are lenient. In the few villages run through, a gendarme will timidly raise his hand to indicate moderation, but more frequently he greets a car with a military salute. Across the high street of Pontgibaud a huge banner warns chauffeurs that they will be summoned if they travel more than five miles an hour, but should the road be clear no protest is made against a car running at 35 miles an hour.

From Pontaumur to Pontgibaud, a distance of 13 miles, the road is wide, varying from 32 to 36 feet, and for the first three or four miles a high speed can be maintained. Then sharp turns on the steep grades become frequent. Just outside the village of la Goutelle, on a 12 per cent. down grade, two very sharp turns have to be tackled.

Lyttle is driving at top speed and is indeed going over this part of the road in the touring car as rapidly as he would be able to do it with the racer. In the tonneau it is necessary to wedge yourself tightly with your feet to prevent being thrown bodily out, and as each difficult angle is negotiated, Lyttle gives a glance around to see that his passengers are all there and utters briefly, "That's fierce!"

To get through Pontgibaud safely requires careful driving, for the road narrows down to less than 17 feet, makes four successive sharp turns, crosses a stream by a narrow bridge and then widens out to 29 feet on an up grade of 10 per cent, which, being perfectly straight, can be taken at high speed. For a few hundred yards the railway runs alongside the road, and by chance an opportunity was given the American car of proving its speed superiority over the local train. At Pontgibaud on the day of the race there will be a spacing control the same as at Laqueulle, previously described.

Near Vaurial the second temporary bridge over the railway is passed, and shortly after the most beautiful scenery on the circuit comes into view. The road forms a ledge on the hillside. On the left a perpendicular cliff; to the right is a sheer drop of several hundred feet into a picturesque ravine, the sides of which are covered with trees and bushes, and at the bottom of which a white road twists between patches of cultivated ground flanked by red roofed cottages. At two or three points one can look across the ravine and see the course winding around a bend on the hillside a mile ahead. The road here is about 39 feet wide, well made, and, despite the precipices, a high speed is possible. A height of 2,950 feet is attained on this chain of hills, and the country is visible for miles around.

Twelve miles from Clermont the down grade commences and continues right into the town, descending from 900 meters to 400 meters. The utmost caution is necessary, for the road is but a series of sharp turns on a down grade of from 7 to 15 per cent., and only averages 26 feet in width. It is utterly impossible on the greater part of this road for one car to pass another going in the same direction. To attempt it would he to court disaster.

At 9:30 o'clock the Pope-Toledo car was back in the garage at Clermont, which, making deductions for the stops to visit the various repair stations marked out on the road, gave 2 hours 28 minutes for the 86 miles covered.

The reader will observe that the course was gone over in the direction that the cars will race, which is, with the driver next to the inside of the circuit. This can be seen very clearly on the map of the course, printed on page 4. The Vanderbilt race on Long Island was run in the same direction, which is opposite to that invariably followed in American track races.—Editor's note.

French Racing Motorcycles.

Special Correspondence.

PARIS, June 17.—France is to be represented in the international motorcycle race, to be run June 25, by one Griffon and two Peugeot machines, the elimination trials over the St. Arnoult-Dourdan-Ablis course on June 11 having resulted in the selection of Demeester on a Griffon, and Guippone and Champoiseau on Puegeots, as the French team. In the trials all three averaged more than 44 miles an hour for the 245 kilometers (152 miles).

The two makes of machines have much in common. Both have two-cylinder engines of between 7 and 8 horsepower set vertically in a loop of the frame in front of and below the crankbracket, as shown in the accompanying engraving of one of the Peugeot machines. The cylinders are set at an acute angle to each other, or in the form of a V, with the carbureter between their heads. The engines are balanced with the utmost care, vibration being almost imperceptible when running. The bore and stroke of the Peugeot cylinders are 80 mm. by 86 mm., respectively; of the Griffon, 85 mm. by 85 mm.

The racing machines are fitted with automatic inlet valves, which is all the more notable because the commercial machines built by the makers of both machines all have mechanically actuated valves. Drive is by a V-shaped belt, following the standard system on all motorcycles in France. Both the Griffon and Peugeot racing machines come well within the weight limit of 110 pounds. They are fitted wih 2 1-4 inch tires.

A peculiarity of the Peugeot is the double-barrel carbureter with only one float chamber, the object being to avoid the carburetion troubles common to engines of this type when carbureters with single mixing chambers are used. The Griffon carbureter however, has only one mixing chamber.

Ignition by jump spark from separate coils is used on both makes, the Griffon system possessing the peculiarity that the

CHAMPOISEAU ON PEUGEOT MOTORCYCLE, A FRENCH DEFENDER IN THE INTERNATIONAL RACE.

timer, instead of being in the usual place on the engine, is bolted to the middle bar of the bicycle frame under the tank and is driven from mitre gears on the camshaft through a cardan jointed shaft. Storage batteries, or accumulators, for ignition, are carried on the heads of both machines, suspended from the handlebars. Pedals are fitted to all machines, their use being made obligatory by the rules of the race.

Both machines have a speed capability of about 90 miles an hour when fitted with their "record run" driving pulleys, but for the climination trials they were "geared" for a maximum of 75 miles an hour.

France, Germany, Austria and England will be represented by three men each in the international race to be run next Sunday.

AMERICAN EXPORTS GROWING.

Exports of automobiles and parts of same from the United States for the month of May, 1905, aggregated in value $291,681, an increase of $120,409 over the same month last year.

During the eleven months ended with May, 1905, the exports reached a total value of $2,167,744; an increase of $453,937 over the same period ended with May a year ago, and more than double the aggregate for the eleven months ended with May, 1903.

A. A. A. ROUTE MAPS.

Arrangements have been made by the American Automobile Association with the Survey Map Company of New York City whereby members of the A. A. A. can secure the complete set of Automobile maps which the company is publishing, eighteen sections, embracing eight to ten maps each, for a total cost of $18, as against $30 charged to non-members.

These maps cover a territory embracing the states of New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, Maine and the lake shore route from the New York state line to Chicago. The complete set embraces 170 individual maps. They were prepared carefully from actual road work by the members of the A. A. A., under the supervision of the chairman of the touring committee. The good roads are indicated in red, and ordinary roads in black. The maps are on a scale of four miles to the inch. Mountains are indicated and their elevations given. On the back of each map is published a description of a through route between important cities. The sections are to be issued at the rate of one about every two weeks, and non-members can secure them separately from the publishers at a cost of $1.75 each, or may subscribe for the full set.

An Atchison girl was out riding in an automobile this morning, when the rain came up. And you should have seen her smash the speed ordinance in getting home. —Atchison, Kans., *Globe*.

Carbureter Functions Discussed.*

By MERVYN O'GORMAN.

(*Concluded from page 777, issue of June 29.*)

Heating.—It is Mr. Dugald Clerk who has shown that the colder the mixture we draw in the better for the possible output of the engine, provided that as we evaporate the gasoline we supply the latent heat for the purpose. The amount of heat required is, therefore, proportional to the amount of gasoline used. As the mixture is not always of constant proportion, it would be best to heat the gasoline itself as it leaves the nozzle by making it impinge on a hot cone kept at a constant heat by a thermostat. This method does not exist at present, but approximations to it exist by warming the mixture chamber into which the gasoline passes, and thus supplying the extra heat, for which larger quantities of mixture are used, by heating a portion of the air.

The objection to this plan of passing a proportion of the air over a hot pipe is that when the gas is taken in slowly, say at half throttle, it gets more heated than when the same volume is taken in fast, so that if the car is right for hill-climbing, it is probably wrong for racing at full power on a more moderate gradient. This results, for one example, in the necessity for elaborately tuning a racing car to make the best average on a varying road, instead of tuning the carburetter in a skillful manner to give, not the best average, but the actual best possible result at each and every section, hilly or flat.

I am afraid you will feel disposed to protest against my introducing three thermostats in a car to be supplied with air, which, in ordinary course, will be at various temperatures. My reply is that I am not so sure we shall not yet even introduce a fourth thermostat into the air supply, but I am fairly hopeful some such course will yet be adopted when we consider that little weight is added by these devices, and that one minute gained in a six-hour race is quite a respectable victory, bringing a business worth tens of thousands of pounds.

Spray Nozzle.—The function of this is to minutely subdivide the issuing liquid, so that a very large surface is offered to the air for rapid evaporation. Each cylinder full of gas requires a little cube of gasoline, having about 1-8-inch to the side, and this may be shot out of a single or many orifices, and as the evaporation takes place from the moment the liquid leaves the nozzle, it is disposed to abstract all the heat it can get, not only from the air, but also from the metal nozzle itself, thus lowering its temperature considerably. For this reason, if it be at all possible to do so, the water heating should be brought as near as possible to the nozzle.

Mr. Perissa points out that if nozzles are designed to produce a high jet (which means that they do not impede the flow of liquid, and are, therefore, efficient as regards the output for a given pressure) they have the defect that the jet so produced remains compact, and will not be easily broken up into a cloud of "droplets." Capillary tubes, on the other hand, though giving a good "cloud effect," introduce a high resistance, which makes a difficulty in starting the carburetter, a matter of no small importance, now that we are getting to use cars which almost invariably start on the switch.

The Longuemare type of nozzle avoids the difficulty of drilling a fine hole accurately to 1 in 10,000ths of an inch (which cannot be altered or amended) by substituting for this the making of scratchings inside the conical cup which is fitted with a male piece, giving the effect of a rose, and allowing a little adjustment of the size and number of holes used.

The control of the liquid after it leaves the nozzle has been most elaborately dealt with, and various methods are indicated in the examples of carburetters which I have given. I do not think I shall be understating the case if I claim that the difficulties in properly dealing with the fluids after this point are at least as great as the sum of all the difficulties met with up to here.

I should like to put forward the somewhat paradoxical suggestion that much as we may pride ourselves in England on having stood together to fight the alleged master patent of Maybach's float feed carburetter, it might have been better for us if we had never won. For supposing one half the ingenuity that has since been expended on float feed spray devices had been turned into other channels, the riddle might have been solved elsewhere in a simpler fashion. Witness the excellent beginnings made by surface wick carburetters of the most amazing simplicity of design.

As I have said, the physical difficulty in the way of persuading a liquid and a gas to follow even remotely similar laws over a very wide range of variation of two variables, namely, the pressure and the duration of that presence is immense. If both the substances concerned were presented in the gaseous form they would appear *a priori* to be easier to deal with as obeying by their nature identical laws as to the relations between volume, pressure and temperature, and similar laws as regards their flow through pipes and inertia.

*From a paper read before the Automobile and Cycle Engineers Institute, Birmingham, England.

Don't wear a pair of racing goggles when you ride in a piano-box electric runabout; the two do not go together, somehow.

Don't let in the clutch with one foot while holding down the brake with the other. It is no longer a new stunt

Text of New Connecticut Law.

THE result of the labors of the Connecticut Legislature over the ten automobile bills introduced last winter and spring is embodied in the single bill printed below, which was passed by the Senate at Hartford last week and sent to the Governor for signature.

Something unusual in the way of a law was to have been expected from the smoke that ascended from the committee discussions and hearings on the various measures, but the compromise substitute for them all follows the conventional lines very closely and embodies nothing really radical.

The new law, upon signature by the Governor, becomes effective on July 15, and supercedes and repeals the registration and speed laws of 1903. One of the most important effects of this is that the speed limit throughout the state, outside of the limits of any city or borough, is raised from fifteen miles an hour to one mile in three minutes, or twenty miles an hour, while within city and borough limits the rate still remains twelve miles an hour. The old speed law gave to the Mayor of any city, the Selectman of any town, or the Warden of any borough, authority to grant permits for special speed trials and races, but nothing in the new law provides for this. The power of regulating automobiles is taken away wholly from cities and boroughs except on park drives and the regulation of parades, assemblies, etc.

Under the new law two license number tags must be carried on every automobile, one in front and the other in the rear, but only one such number is required on motorcycles, upon which the number may be painted in letters one inch high, accompanied by the initial of the State. The license plates are to be furnished by the Secretary of State at cost; registration fee is $1 for each vehicle. Non-residents who have complied with registration laws in other states and territories may use the highways of Connecticut for not more than fifteen days without securing licenses in that state.

Penalties for violation of the speed limits and the special requirements regarding stopping when signalled by the driver of a horse may be made very heavy. For a first offense a fine not exceeding $200, or imprisonment for not more than thirty days, or both, may be imposed by any justice of the peace, though the defendant is given the right of appeal from the judgment. For second and subsequent offenses the penalty may be $500 fine or imprisonment not exceeding sixty days, or both, but jurisdiction in such cases is taken from the justices of the peace. For other offenses the penalty may be a fine of not more than $50.

Appended to the law are a number of sections designated "Rules of the Road." These embody the usual regulations as to turning out to the right when meeting other vehicles, passing on the left overtaken vehicles, and keeping to the right of the intersection of the middle of crossing roads when turning to the right and to the right of the intersection when turning to the left. New provisions, however, make owners of all vehicles responsible for the acts of their agents, servants, employees, or persons to whom the vehicles have been loaned or hired, when, through inexperience or incompetence or negligence of the law, injury to person or damage to property of another is done. Another section makes persons who fail to observe the rules of the road responsible in treble the amount of injuries or damages caused, and for the costs of suit.

Following is the text of the new law in full:

Section 1.—Whenever the term "motor vehicle" is used in this act, except when otherwise expressly provided, it shall include all vehicles propelled by any power other than muscular, except road rollers, fire engines, police patrol wagons, ambulances, and such vehicles as run only upon rails or tracks.

Sec. 2. Every owner of one or more motor vehicles shall file in the office of the secretary of the state, a statement of his name, residence, and post office address, on a blank furnished by the said secretary for that purpose, and shall obtain from the said secretary a numbered certificate, which certificate shall state the name of such owner and that he has registered in accordance with the provisions of this act.

Sec. 3. Every such motor vehicle, except motor bicycles, shall, at all times while being used or operated upon the public highways of this state, have displayed in a conspicuous place and manner, securely fastened so as not to swing, upon both the front and rear of such vehicle a plate or marker, which shall be obtained from the said secretary as hereinafter provided, and which shall bear the initial letter of this state and the number of the certificate issued to the owner of such motor vehicle. the letter and figures thereon to be four inches high and each stroke thereof to be one-half inch wide and at all times unobscured.

Sec. 4. Every motor bicycle shall, at all times while being used or operated, upon the public highways of this state, have displayed thereon the initial letter of this state and the number of the certificate issued to the owner of such motor bicycle, such letter and figures to be at least one inch high and either painted on such motor bicycle or displayed on a plate or marker securely fastened thereto.

Sec. 5. The said secretary of the state shall keep a record of all statements filed with him, and of all certificates issued by him, which record shall be open to public inspection; he shall furnish, from time to time, at cost price, to any person registered under the provisions of this act, as many plates or markers as may be required by such person for display upon the one or more motor vehicles, except motor bicycles, owned by him at the time of such registration, or thereafter acquired, the number on such plates or markers to be the same in every case as the number of the certificate originally issued to such person under the provisions of this act; and in the event that any certificate issued by the said secretary under the provisions of this act shall be lost or destroyed, he shall issue to the person whose certificate has been thus lost or destroyed a duplicate thereof, bearing the same number as the certificate originally issued to such person.

Sec. 6. A fee of $1 shall be paid to the said secretary of the state for each original or duplicate certificate issued by him in accordance with the provisions of this act.

Sec. 7. No license, permit, or registration shall be required of the owner or operator of any motor vehicle except in accordance with the provisions of this act, nor shall any such vehicle be required to be marked in any way except in accordance with the provisions of this act; but nothing in this section contained shall apply to such motor vehicles as are offered to the general public for hire.

Sec. 8. Any non-resident of this state who shall have complied with the laws of any other state or territory of the United States requiring the registration of owners of motor vehicles, or of motor bicycles, or of both, and the display of identification numbers on such motor vehicles, and who shall cause the identification numbers of such state or territory, in accordance with the laws thereof, together with the initial letter or letters of the state or territory issuing the same, to be displayed on his motor vehicles while used or operated upon the public highways of this state, may use such highways, for a period not to exceed fifteen days in any one year, without complying with the provisions of the foregoing sections of this act; provided; however, that if any non-resident shall be convicted of violating any provisions of section ten or section eleven of this act, he shall thereafter be subject to and required to comply with all the provisions of sections two, three, four, five, six, and seven of this act.

Sec. 9. No prosecution based upon sections two, three and four of this act shall be brought for any offense committed prior to August 1, 1905.

Sec. 10. No person shall operate a motor vehicle on the public highways of this state at a rate of speed greater than is reasonable and proper, having regard to the width, traffic, and use of the highway, or so as to endanger property or the life or limb of any person, or, in any event, within the limits of any city or borough at a greater rate of speed than one mile in five minutes, or outside the limits of any city or borough at a greater rate of speed than one mile in three minutes.

Sec. 11. Upon approaching any person walking in the traveled portion of any public highway, or a horse or any other draft animal being led, ridden, or driven therein, or a crossing of intersecting public highways, or a bridge, or a sharp turn or curve, or a steep descent, and also in passing such person, horse, or other draft animal, and in traversing such crossing, bridge, turn, curve, or descent, the person operating a motor vehicle shall have the same under control and shall reduce its speed. If such horse or other draft animal being so led, ridden, or driven shall appear to be frightened, or if the person in charge thereof shall signal so to do, the person operating such motor vehicle shall bring the same and the motor or other power propelling the same immediately to a stop, and, if traveling in the opposite direction, shall remain stationary so long as may be reasonable to allow such horse or animal to pass, or, if traveling in the same direction, shall use reasonable caution in thereafter passing such horse or other animal.

Sec. 12. No city, town, or borough shall have any power to make any ordinance, by-laws, or resolution respecting the speed of motor vehicles, and no ordinance, by-law, or resolution heretofore or hereafter made by

any city, town, or borough in respect to motor vehicles shall have any force or effect; provided, however, that powers given to any town, city or borough to regulate shows, processions, assemblages, or parades in streets and public places, and to regulate the use of public parks, and all ordinances, by-laws, and regulations which may have been or which may be enacted in pursuance of said powers, shall remain in full force and effect.

Sec. 13. In all complaints for the violation of any provision of this act the justice of the peace before whom the same shall be tried shall have jurisdiction and power to render judgment therein, and issue process of execution and mittimus thereon, where such fine or penalty imposed shall not exceed two hundred dollars, or imprisonment for thirty days, or both; but the defendant shall have the right of appeal as in other cases.

Sec. 14. Any person violating any provision of sections ten and eleven of this act shall be fined not more than $200 or imprisoned not more than thirty days, or both, for a first offense, and shall be fined not more than $500 or imprisonment not more than sixty days, or both, for any subsequent offense. Any person violating any other provision of this act shall be fined not more than fifty dollars.

Sec. 15. This act shall take effect July 15, 1905.

Sec. 16. Chapters 107 and 108 of the public acts of 1903 and all other acts and parts of acts inconsistent herewith are hereby repealed.

RULES OF THE ROAD.

Section 1.—Whenever the term "vehicle" is used in this act it shall include bicycles, tricycles, motor bicycles, motor vehicles of all kinds, vehicles drawn by horses or other animals, and all other vehicles used for the carriage of persons or goods, no matter how propelled, excepting only such vehicles as are run only upon rails or tracks.

Sec. 2.—Whenever a person walking in the traveled portion of a public highway, or a person riding, driving, or leading a horse or other animal therein, or driving or operating a vehicle therein, shall meet another person thus walking or thus riding, driving, or leading a horse or other animal, or thus driving or operating a vehicle, if such persons are moving in opposite directions each shall slacken his pace, if necessary, and seasonably turn to the right so as to give half of the traveled road, if practicable, and a fair and equal opportunity to pass, to the other; or, if they are moving in the same direction, the person overtaking shall pass on the left side of the person overtaken, and the person overtaken shall, as soon as practicable, turn to the right so as to give half of the traveled road and a free passage on the left, to the other. Any such person shall, at the intersection of public highways, keep to the right of the intersection of the centers of such highways when turning to the right, and pass to the right of such intersection when turning to the left.

Sec. 3.—Every such person who shall, by neglecting to conform to the provisions of section two of this act, cause any injury to the person or property of another, or shall negligently collide with another, thereby causing such injury, shall pay to the party injured treble damages and costs.

Sec. 4.—If the owner of any horse or other animal, or of any vehicle, shall entrust such animal or vehicle to his agent, servant, or employee, to be ridden, led, driven, or operated by such agent, servant, or employee upon the public highways of this state, or shall rent or loan the same to an incompetent and inexperienced person to be thus ridden, led, driven, or operated, and such agent, servant, or employee, while in the execution of such owner's business within the scope of his authority, or such incompetent and inexperienced person, as a result of such incompetency and inexperience, shall, by neglecting to conform to the provisions of section two of this act, cause any injury to the person or property of another, or shall negligently collide with another, thereby causing such injury, such owner shall pay to the party injured his actual damages and costs; but in every case the party injured shall elect whether he shall proceed against such owner under the provisions of this section or against the person actually causing such injury under the provisions of section three of this act.

Sec. 5.—Any person violating any of the provisions of section two of this act shall be fined not more than fifty dollars.

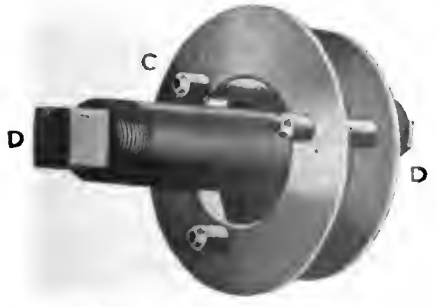
Sec. 6.—Sections 2035, 2036, 2037 and 2038 of the general statutes and all other acts and parts of acts inconsistent herewith are hereby repealed.

Stevens-Duryea Disc Clutch and Carbureter.

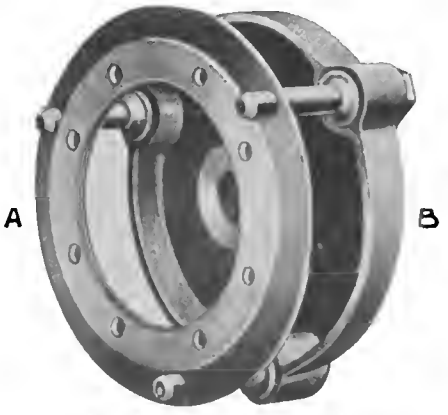
Trade literature is, as a rule, a very different thing from what it once was. Manufacturers and dealers are beginning to understand that the man who is really interested in a car does not pay the slightest attention to bald statements proclaiming a particular car to be "the best;" or to "odious comparisons" with the products of other makers. He wants facts—not opinions, real or imaginary. In issuing a booklet describing the new Stevens-Duryea four-cylinder twenty-horsepower touring car, the J. Stevens Arms & Tool Co., of Chicopee Falls, Mass., makes the statement that the book is a recognition of the right of the purchaser to know what he is getting for his money. While the description does not include those parts of the car which are similar, in their main features, to like parts of other cars, the distinctive features, and the constructive details which the manufacturers consider are improvements on common practice are carefully described and clearly illustrated. Among these is the multiple-disc clutch. The design of the power and transmission plant, in which the crank-case of the motor and the transmission gear-case are joined by a tubular intermediate member, necessitated a clutch of such small diameter that it would occupy no more space than was afforded by this intermediate casing, the fly-wheel being quickly disposed of by placing it at the front end of the motor. So the multiple-disc type of clutch was decided upon, and a special form worked out.

A flange secured to the rear end of the engine crankshaft carries three studs at equal distances apart on its periphery, the studs projecting rearwardly, parallel to the shaft. On these studs are strung four discs—or, more properly speaking, flat, thin steel rings—the rings being of such diameter that the holes through which the studs pass are close to the outer edges, leaving the major portion of the ring, toward the center, free and clear. This part of the ring, inside the stud holes, is covered with leather on both sides. It will be understood that the whole of this part of the clutch must revolve with the crankshaft of the motor and constitutes the driving member of the clutch. The driven member is made in a very similar way; the forward end of the primary shaft of the transmission carries a flange that fits into a recess in the face of the large flange on the crankshaft. The small flange also carries three studs, pointing in the same direction as the studs on the large flange, but so close to the shaft that they are clear of the inner edges of the rings on the driving member of the clutch. Rings are mounted on these studs in the same way as the rings on the other studs; except that in the driven member the rings are strung by holes near their inner edges.

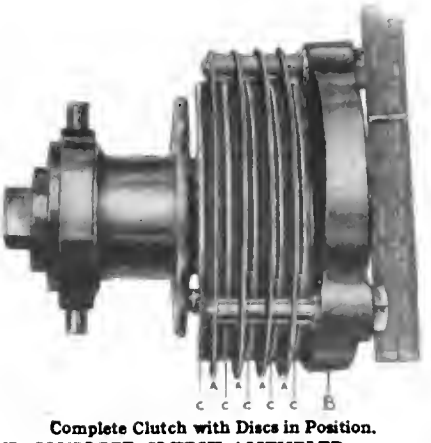
In assembling the friction rings are strung on the studs of the driving and driven members alternately, until there are



Driven Member and Plain Steel Disc.

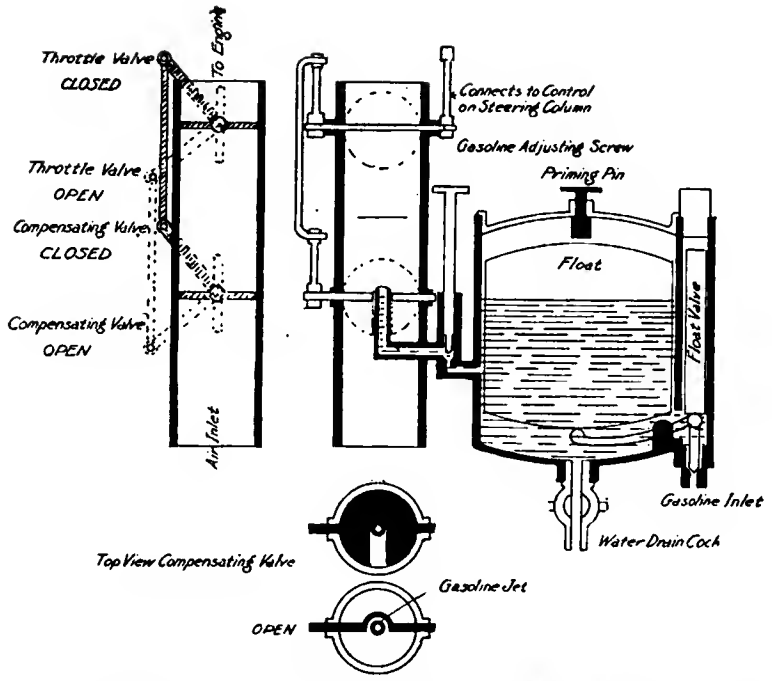


Driving Member and Leather Faced Disc.



Complete Clutch with Discs in Position.

STEVENS-DURYEA MULTIPLE DISC CLUTCH, SHOWING DRIVEN AND DRIVING MEMBERS AND COMPLETE CLUTCH ASSEMBLED.



STEVENS-DURYEA CARBURETER, SHOWING DIAPHRAGM AT SPRAYING NOZZLE.

four large rings with leather facings on the studs of the driving member, and five of the smaller plain steel rings on the driven member; the outer edges of the driven rings overlapping the inner edges of the driving rings. As all these rings have considerable lateral play, the shafts on which they are mounted may be rotated independently of each other. If, however, pressure is brought to bear on the end disc, all the discs will be pressed together, each disc being nipped between two others, binding the two sets together and forcing them to revolve together when either shaft is turned. This pressure is supplied by a stiff helical spring normally tending to keep the discs pressed together and the clutch in engagement, and a pedal is provided for compressing the spring and releasing the clutch in exactly the same manner as with the usual cone clutch.

As the primary transmission shaft must pass through the large openings in the centers of all the discs, the part that centers the clutch is a short separate section attached to the main part of the shaft by a squared joint. No oil is used in this clutch, as the leather and polished steel work together well without lubrication; and the action is very smooth and uniform, permitting the car to be started from rest easily, smoothly and without the jar. The fact that all wear is automatically taken up by the pressure of the spring, thus obviating the necessity for frequent and delicate adjustments, is a feature of great merit.

The Stevens-Duryea carbureter is remarkably simple and free from liability to derangement. It is diagrammatically illustrated herewith, and its action will be understood readily. The diaphragm at the spray nozzle is linked by an outside connection to the throttle diaphragm and they move together when the throttle lever on the steering wheel is moved. The throttle regulates the supply of gas that is allowed to pass to the motor, and the diaphragm at the spray nozzle concentrates the flow of air close to the nozzle when the throttle is closed and the suction is weak, and reduces the suction proportionately as the velocity of the air increases when the throttle is opened.

New Publications.

Automobilists, actual or prospective, and others who are in need of elementary knowledge concerning the construction and operation of gasoline automobiles usually have to delve for what they want and bring it to light among a mass of data, technical, theoretical or descriptive. It is a rather tedious process, and the average man cannot be blamed for wishing there was some other way out of the difficulty. To meet this need and provide a way of escape for the seeker after knowledge, *Motors and Motoring*, by Henry J. Spooner, C. E., has been brought out by Dodd, Mead & Co., New York. It is a convenient little book, and starts in at the beginning by stating fundamental facts. Throughout the book principles are dealt with, and no particular practical applications are described. All the drawings are diagrammatic, made so as to indicate in the clearest possible way the functions common to all gasoline automobiles, without confusing the inexperienced mind by describing a host of different forms of the same thing, all perhaps working on practically the same principles, but differing sufficiently to get the amateur hopelessly muddled. The reader will not run into a forest of mathematical formula of no earthly use to him; he will not lose himself among a lot of theories, admirable in themselves but meaningless to the beginner; and he will not find himself wading through descriptions of cars that may be out of date before he has finished the book, and in any case, can just as well he obtained from the catalogues of the manufacturers. The book is an excellent one for the beginner in the study of the gasoline automobile, and should be especially useful for the youth with mechanical inclinations who wants to know the why and wherefore of the most modern means of transportation.

CAR TOOL LOCKER.

A convenient feature of the Thomas car is the tool locker illustrated herewith. One of these handy little receptacles is located at each side of the pressed steel dashboard, having racks in which pliers, screw drivers, wrenches and other tools may be carried conveniently, out of the way and yet within easy reach when wanted.. Locks are provided, so that the contents are not at the mercy of the first "borrower" who comes along. These lockers are found in the dashboard of all the Thomas Flyers, manufactured by the E. R. Thomas Motor Co., of Buffalo, N. Y.

As the public becomes accustomed to the presence of the automobiles in the public highways the outcry against the machines is dying out to a great extent. The history of the bicycle is going to be repeated in the case of the automobile. Twice as many autos are in use this year as last, but the complaints are not anywhere near as numerous and the feeling against the machines is not nearly as bitter as it was. The fool "record breakers" will have to be suppressed just as the bicycle "scorchers" were, and then we will hear no objections to the use of the machines on all the public highways.—Kenosha, Wis., *Courier*.

TOOL LOCKER IN THOMAS DASHBOARD.

Automobiles Used by New York City.*

Total of Twenty-one Passenger Vehicles Now in Active Service —Thirty-four to be Purchased—Descriptive Details.

By WILLIAM L. DUDLEY.

Automobiles and Motor Bicycles in Use by the Government of the City of New York or Scheduled to Be Purchased.

Department	In Use Gasoline	Steam	Total	Prospective Gasoline	Steam	Total	Grand Total
Mayor and Borough Presidents	*4	..	4	..	..	..	4
Department of Street Cleaning	6	..	6	1	..	1	7
Fire Department	2	..	2	9	..	9	11
Department of Health	..	..	..	†21	..	21	21
Department of Parks	2	..	2	..	..	..	2
Department of Docks	..	2	2	..	..	..	2
Department of Public Works	1	1	2	††1	..	1	3
Police Department (Automobiles)	..	..	..	2	..	2	2
Police Department (Motor Bicycles)	3	..	3	..	..	..	3
Totals	18	3	21	34	..	34	55

*Including two privately owned. †Includes one automobile ambulance authorized and constructed. ††Owned by Chief Engineer Tillson, of Brooklyn.

DEPARTMENT OF HEALTH.

At present no motor vehicles are in use in this department, though an automobile ambulance has been constructed by the Daimler Manufacturing Co., of Long Island City, according to the specifications of the department, and is only awaiting an official test before being accepted. Upon its acceptance it will be put into service in connection with the Hospital for Contagious Diseases on Kingston avenue, Brooklyn. The ultimate plan of the department is to obtain four of these motor ambulances in each of the five boroughs of the city—a total of twenty in all. One would be used in each borough exclusively for the conveyance of patients suffering from one of the four contagious diseases, viz., smallpox, measles, scarlet fever and diphtheria. For each of these a separate horse ambulance is now used in each borough with the exception of the Borough of Richmond, where a single ambulance is used for all four diseases and is disinfected after each trip.

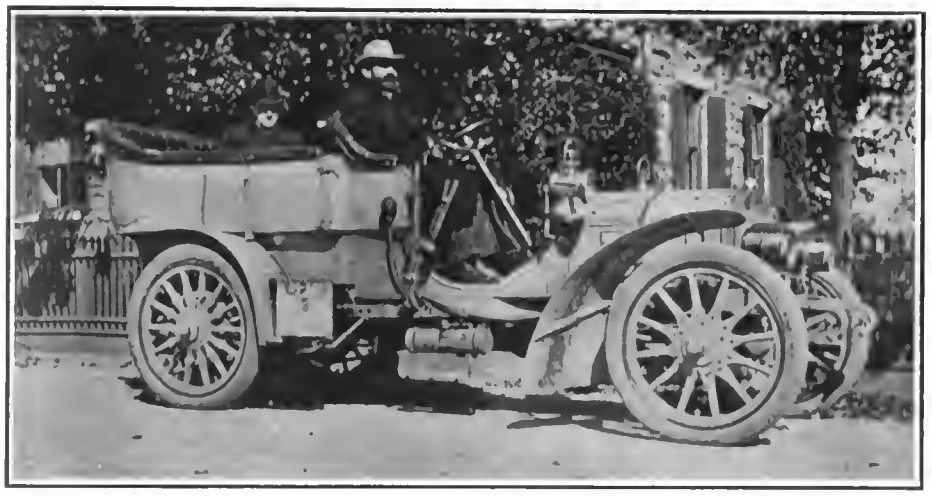
Dr. Thomas Darlington, President of the Board of Health, is also endeavoring to obtain a touring car for general inspection purposes, such as visiting the Croton Watershed and the hospitals in the various boroughs. Regarding the need for an automobile for this purpose, Dr. Darlington said: "Such a vehicle is an absolute necessity, as I am now unable to go to Richmond or Jamaica, as I cannot possibly spare the time necessary to make the trip by ordinary mode of conveyance, yet these and many similar

*Concluded from page 744, issue of June 22.

MAYOR G. B. McCLELLAN IN WINTER COSTUME.

Courtesy of C. P. Darlington.

FIRST OF THE TWENTY MOTOR AMBULANCES WHICH COMMISSIONER THOMAS DARLINGTON OF THE BOARD OF HEALTH PROPOSES TO PUT INTO SERVICE IN NEW YORK CITY—AN AMERICAN DAIMLER.



HEALTH COMMISSIONER DARLINGTON IN TONNEAU STARTING TO INSPECT CROTON WATERSHED.

trips of inspection are most urgent, either by myself or the sanitary inspector.

"Regarding the motor ambulances, their need is a matter of life or death, on account of the time which could be saved in taking a patient to a hospital in an emergency, such as a child dying from diphtheria and whose life could only be saved by putting a tube in its throat. The child might die while being taken to the hospital in a horse ambulance, while if taken in a motor ambulance its life might be saved."

DEPARTMENT OF PARKS.

No automobiles are used by this department in the boroughs of Manhattan, the Bronx or Richmond, but in the boroughs of Brooklyn and Queens, which are under the same general supervision and which contain fifty-five parks, large and small, and twenty-two and a half miles of parkways, two 16-horsepower Rambler touring cars are used by Commissioner Kennedy and Supt. Zartman, respectively. These two vehicles were purchased last year at a cost of $1,550 each, and have been given very severe service on account of the extent of the territory covered, the tours of inspection extending from Bay Ridge, Bath Beach and Coney Island on the west to Astoria, College Point, Whitestone, Jamaica and Rockaway on the north and east. They have given good service within their limitations of power, but the officials of the department state that more powerful cars would be desirable, thus bearing out the experience of the Street Cleaning Department.

These cars are fitted with clincher tires, and punctures have been numerous, particularly upon the roads in the outlying districts, half a dozen tires having been used up between the two machines within a year. The chauffeurs are obtained through the Civil Service Commission and are paid $3 a day. Both machines are kept at the stables of the Litchfield Mansion in Prospect Park, Brooklyn.

DEPARTMENTS OF DOCKS AND FERRIES.

This department used two Locomobile steamers, one of 10-horsepower and the other 3-horsepower. The higher powered machine is the newer, having been bought last November, and is used by Superintendent Manley. It is used for general inspection purposes throughout the whole of Greater New York and has been run about 4,000 miles since its date of purchase. It is fitted with Diamond tires, and the only change which has been made in the original equipment has been the replacement of an inner tube which was cracked, the tires never having been punctured. About five miles to about a gallon of gasoline was said to be the average mileage. The other vehicle has been in use four years and still gives good service, being used by the assistant superintendent of the department. It has had good care and has never had a boiler tube burned out. Both vehicles are housed on Pier A, North river, New York, which is occupied jointly by the Department of Docks and Ferries and the harbor police. The chauffeurs pass a civil service examination and are paid $3.50 a day.

DEPARTMENT OF PUBLIC WORKS.

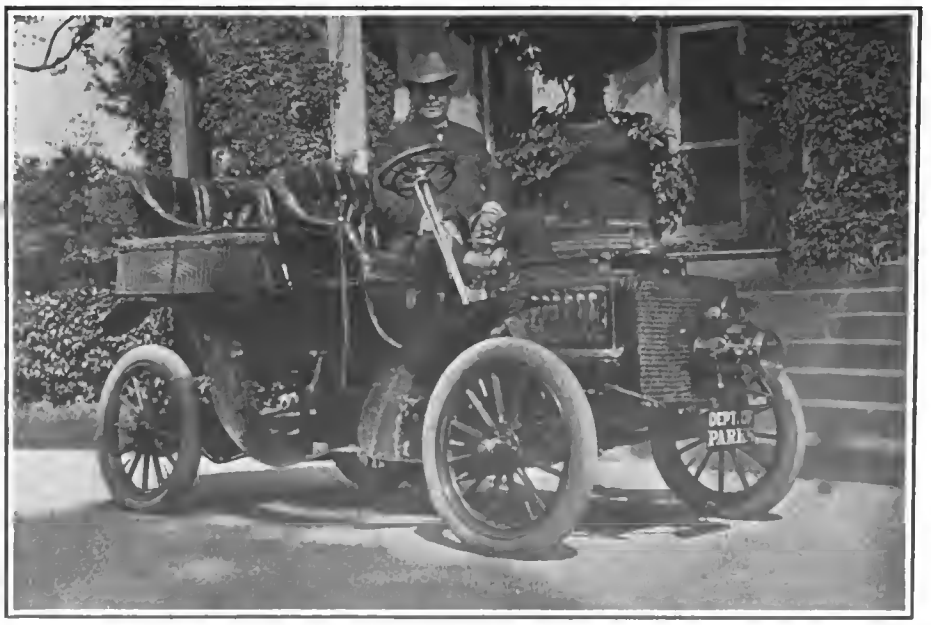
Two steam Locomobiles were bought for use in this department in January, 1903, one being used by M. S. Hill, chief engineer of the water bureau, and the other by Mr. Lacombe, engineer in charge of lighting. One was destroyed by accident last March and the other is still in service. It has been decided to replace the destroyed vehicle by a gasoline touring car of 10 to 20 horsepower, for which bids have been invited. This will be used by the Bureau of Lamps and Gas to inspect the public lighting service.

In Brooklyn, Chief Engineer George W. Tillson has a 10-horsepower Autocar runabout, which has been used about a year with very satisfactory results. It is going "about one-half the time," and covers from thirty-five to fifty miles daily. The front wheels are fitted with Goodrich tires and the rear wheels with Samsons, which are reported to give satisfactory service. The chauffeur is paid $3 a day, which is the prevailing rate in Brooklyn.

POLICE DAPARTMENT.

Commissioner William McAdoo stated in response to an inquiry regarding the use of automobiles in this department that the purchase of an automobile for the use of the commissioner's office is contemplated, and that if the experiment is satisfactory it is likely that he will recommend the purchase of one for Deputy Commissioner Thomas F. Farrell in Brooklyn. Three motor bicycles are in use and are said by Commissioner McAdoo to give satisfactory service, especially in chasing automobilists who break the speed laws.

The harbor police also use a motor boat fitted with a 10-horsepower Twentieth Cen-



PARK COMMISSIONER MICHAEL J. KENNEDY, OF BROOKLYN AND QUEENS, IN A PARK DEPARTMENT RAMBLER INSPECTION CAR.

tury gasoline engine, for patrolling the East river, in addition to two naphtha launches and four steamers.

EXECUTIVE O FICERS.

Borough Presidents Martin W. Littleton of Brooklyn and George Cromwell of Richmond were supplied by the city with 16-horsepower Knox runabouts about a year ago, which they use for general inspection purposes within the limits of their very extensive territories. President Littleton's machine is reported to have covered 8,600 miles within the past year, "averaging 12 miles to a gallon of gasoline." As is the case with all the city automobiles used in that borough, the wear upon the tires has been severe, eight having been used within the year. The driver, who is furnished by the city, is paid $1,200 a year.

Mayor G. B. McClellan, although the official head of the city government, is not furnished an automobile by the city, but possesses a Decauville touring car of his own, which he frequently uses upon a tour of inspection. Borough President Joseph Cassidy of Queens is the owner of a 60-horsepower American Mercedes, which is his personal property, but is also used by him for official business.

SUPT. MANLEY, DEPARTMENT OF DOCKS AND FERRIES, IN STEAM LOCOMOBILE.

Charles J. Macomber, superintendent of the Muncie Gas Engine and Supply works, who went to St. Mary's, O., yesterday with his family in an automobile, had a narrow escape from probable death while on the way. While on the road southwest of Dunkirk a team of horses hitched to a nitroglycerin wagon frightened at the auto and ran away. The wagon was overturned, but fortunately there was no explosion.—*Munsie (Ind.) Star.*

Glidden Tour Plans and Conditions.

INTEREST in New York and Boston automobile circles has for a week or more centered very largely in the Glidden Tour Trophy contest, and entries for it have been coming in rather freely. Up to last Saturday twenty-four entries had been received at the office of the Touring Committee of the American Automobile Association, at 31 West Forty-second street, New York, and so many other entries had been promised that it was decided to extend the time for closing of the list to July 8, three days before the start of the tour from New York. Herewith are the entries received up to the end of last week:

Lee, Elliot C., Boston, White.
Temple, W. C., Pittsburg, Pierce.
Speare, L. R., Newton, Mass., Winton.
Whipple, H. W., Andover, Mass., Peerless.
Glidden, C. J., Boston, Napier.
Post, Augustus, New York, White.
Breese, James L., So. Hampton, R. I., Mercedes.
Edwards, C. J., Brooklyn, N. Y., Cadillac.
Scott, R. P., Baltimore, Peerless.
Page, Carl H., New York, White.
Draper, George O., Hopedale, Mass., Packard.
Hurlburt, W. B., New York, Packard.
Church, A. W., New York, Dccauville.
Pierce, Percy P., Buffalo, Pierce.
Pope, H. L., Hagerstown, Md., Pope-Tribune.
Walker, C. E., Hartford, Pope-Hartford.
Briscoe, Benjamin, Tarrytown, N. Y., Maxwell.
Pardee, Col. K. C., Tarrytown, N. Y., Maxwell.
Hutchinson, S. E., Philadelphia. Panhard.
Cuneo, Mrs. Joan Newton, Richmond, L. I., White.
Woods, Edwin H., Boston, Napier.
Gilmore, E. C., Boston, Rambler.
Lowe, George H., Boston, White.
White, Walter, Cleveland, White.
Olds, Mr. and Mrs. R. E., Lansing, Reo.

Much excellent preliminary work has been done by the Touring Committee and the press bureau established by it. A well prepared folder of thirty-two pages has been issued, containing a map of the route to be followed through New England during the twelve days, also road directions and distances from city to city, articles of the Glidden Trophy deed of gift, lists of the local representatives appointed by the committee in the cities where night stops are to be made, of the hotels and garages selected for the tour, of the automobile clubs that are members of the A. A. A. and whose members are entitled to enter in the contest, and other useful information. Three pages at the back of the booklet are devoted to information regarding the St. Paul automobile tour, which will finish in St. Paul on July 4. The pamphlet is very attractive in form and appearance, and contains just the information that is most in demand preceding the actual start of the Glidden event.

Hotel accommodations, at reduced rates, are to be reserved before the start of the tour for all participants in the event, so that there will be none of the confusion and annoyance incident to the scramble for accommodations that has occurred in endurance contests of the past. Special arrangements have already been made for the housing of cars at the night stops. The Massachusetts Automobile Club has very courteously offered the free use of its excellent garage in Boston. At Bretton Woods and the Wentworth Hotel there will be no garage charges except, of course, for supplies and for cleaning when done by employees of the garages.

To make clear the object of the competition and the manner in which it is to be conducted, the deed of gift and the conditions governing the 1905 tour are here reprinted in full:

ARTICLES OF DEED OF GIFT.

FIRST.—The Trophy shall be known as "THE CHARLES J. GLIDDEN TOURING TROPHY."

SECOND.—The Cup shall be competed for annually, beginning with the year 1905, by members of any American automobile club affiliated with the American Automobile Association, or of any club in the world recognized by it. The club of which the winner is a member shall have the custody of the Trophy until it is won by another, and shall give to the American Automobile Association, or its successor, a satisfactory bond, with sureties, in the sum of three thousand (3,000) dollars for such custody.

THIRD.—The distance to be driven in competition shall not be less than one thousand miles, nor less than five hundred miles weekly, and shall be over regularly used highways in the country where the holding club is located, except in the years 1905, 1906 and 1907, when the contest shall be held in either the United States or Canada, or both.

FOURTH.—Each 1905 entry must be ac-

companied by a fee of $50. In event of failure to start, the entry fee shall be forfeited.

FIFTH.—The car shall be driven by the owner or a driver approved by the committee, the owner being a passenger in the car.

SIXTH.—All other rules governing the contest shall be fixed by a committee of seven, consisting of the president of the American Automobile Association (who shall be chairman), the donor, and the presidents of the Automobile Club of America, the Automobile Club of Great Britain and Ireland, the Automobile Club of France, the Deutscher Automobile Club, and the president of an automobile club in Canada to be recognized by the American Automobile Association, or representatives selected by the above-named persons. The chairman and two members of the committee shall constitute a quorum.

Under the provisions of section 6 of the foregoing articles, the Tour Commission for 1905 will be composed of: Elliot C. Lee, chairman, representing the A. A. A.; Dave H. Morris, president of the Automobile Club of America; George E. McQuesten, representing the A. C. of Great Britain; William K. Vanderbilt, Jr., representing the A. C. of France and the Deutscher A. C., and Charles J. Glidden, donor of the trophy.

This commission has prepared rules for this year's event and selected a touring route that is unrivaled in America for its good roads, magnificent and diversified scenery, and its superior hotel and garage accommodations. Starting from New York City on Tuesday, July 11, there will be night stops at Hartford, Boston and Portsmouth, and the tourists will arrive at Bretton Woods, Mount Washington, in the White Mountains of New Hampshire on Friday night. Saturday and Sunday will be available for side tours through the magnificent mountain district. Monday and Tuesday will be devoted to the second annual "Climb to the Clouds" on Mount Washington. Wednesday, on the return route, the tourists will go through the Franconia Notch and down the valley of the Merrimac River to Concord, N. H. Thursday night will be spent in Worcester, Mass., and on Friday the beautiful Berkshire Hills will be penetrated, and the stop for the night will be at Pittsfield. The following and last day of the tour will see the tourists making their way through Lenox, Stockbridge and Great Barrington, thence down the bank of the Hudson River from Poughkeepsie to New York City, where the tour ends.

HOTELS AND GARAGES.

The hotels and garages appointed for the tour are as follows:

Hartford, Conn.—Allyn House, The Heublein; Palace Automobile Station, 122 Trumbull street.

Boston, Mass.—Lenox Hotel, Bellevue Hotel; Massachusetts A. C. Garage, 761 Boylston street.

Portsmouth, N. H.—Hotel Wentworth; Hotel Garage.

Bretton Woods, N. H.—Mount Pleasant, Mount Washington; Hotel Garage.

Concord, N. H.—Eagle Hotel; Hotel Garage; Mosely & Sanborn, 176 North Main street.

Worcester, Mass.—Bay State House; Central Automobile Exchange, 43 Foster street; Harrington's Auto Station, 31 Central street; B. A. Robinson, Church place; Palace Auto Co., Main street.

Pittsfield, Mass.—Wendell Hotel, The Maplewood; Central Automobile Station.

The Touring Committee has appointed the following representatives at the night controls:

Hartford, Conn.—C. H. Gillette, Hartford Automobile Club.

Boston, Mass.—Lewis R. Speare, Newton Automobile Club.

Portsmouth, N. H.—Mr. Wood, Wentworth Hotel.

Bretton Woods, N. H.—John Anderson, Mount Washington.

Concord, N. H.—F. L. Johnston, E. H. Fogg, Granite State Automobile Club, Manchester, N. H.

Worcester, Mass.—Asa Goddard, Worcester Automobile Club.

Pittsfield, Mass. — Franklin Weston, Berkshire Automobile Club.

The A. A. A. Touring Committee for 1905 is composed of: Augustus Post, Long Island A. C., chairman; C. J. Glidden, Massachusetts A. C.; W. C. Temple, Pittsburg A. C.; A. R. Pardington, Long Island A. C.; James L Breese, A. C. of America; H. W. Smith, Syracuse A. C.; M. M. Belding, Jr., A. C. of America; L. E. Myers, Chicago A. C.; Walter C. White, Cleveland A. C.; A. B. Lambert, A. C. of St. Louis; William Moncypeny, Jr., Columbus A. C.; Frank A. Garbutt, A. C. of Southern California, and A. B. Tucker and M. L. Downs, representatives for the Glidden Tour.

RULES OF THE CONTEST.

It will be seen from the following conditions of the contest that the rules are not onerous and that, owing to the latitude allowed contestants in the matter of starting and finishing at controls and the freedom from restrictions, penalizations, observers, and the like, the event is, as its name implies, more in the nature of a pleasure tour than an endurance run or reliability contest.

I.—CONCERNING ENTRANTS.

1. It will be assumed that every contestant is acquainted with the rules of the contest, and by entering therein agrees to abide by said rules, agrees to accept the official records, and authorizes the A. A. A. to publish them in such manner as it shall determine.

2. In the event of a dispute concerning the interpretation of the rules, the decision of the Glidden Committee shall be final.

3. The Glidden Committee reserves the right to alter or amend these rules from time to time as they may deem expedient.

II.—QUALIFICATIONS.

4. Each contestant shall be a member of a club recognized by the American Automobile Association, and shall have been a member for at least thirty days.

III.—ENTRIES.

5. The time for receiving entries, accompanied by the regular fee, will expire two weeks before the date set for the contest, and the entries for the 1905 event must be accompanied by a fee of fifty dollars ($50).

6. Each entrant furthermore agrees that he shall hold the A. A. A. harmless in case of a lawsuit.

7. It is one of the conditions upon which entries of cars are accepted by the A. A. A., that the A. A. A. shall not be responsible for any damage that may be done to the car or its contents during the tour, nor for the theft of the car or any of its accessories or contents, same being at all times subsequent to such entry, and until the close of the tour; at the risk in all respects of the person entering same.

8. Each entrant shall give all details asked for in entry blank.

9. The A. A. A. reserves the right to refuse an entry without giving a reason.

IV.—TOURING CONDITIONS.

10. The car shall be driven by the owner or a driver approved by the Glidden Committee, and not changed unless such operator is incapacitated during the contest, the owner being a passenger in the car.

11. Cars must have mufflers and mud guards and be equipped as per manufacturer's catalogue specifications.

V.—NUMBER.

12. Each car shall have prominently displayed an official number on each side, or on front and rear of car, numbers to be allotted in order of entry.

13. No sign or other indication of the maker's name shall be displayed other than the nameplate, which is usually attached to the vehicles, as sold to private owners, nor any record of any previous performance.

VI.—CONTROLS.

14. Cars shall be privileged to start each morning between six and ten o'clock, but neither before nor after the hours designated except with the penalty of a discredit mark.

15. Each car to retain a perfect score must register before nine o'clock at each night stop, and on arrival, must take its place immediately behind the car in front until it can be properly recorded.

VII.—SPECIAL HILL CLIMB.

16. If the committee finds upon arrival in the White Mountains that a hill-climbing course is available, it may arrange a special contest for the participants of the tour. In this event, as in the tour itself, the question of speed will not count in favor of a car, since the test will be utilized simply for the purpose of exacting one of the conditions of ordinary touring.

The committee may also select a special run in the White Mountains, in order to complete the total mileage of 1,000 miles during the tour.

VIII.—AWARD.

17. At the conclusion of the tour the duly qualified owners, whose cars have finished the tour and complied with all the conditions thereof, will be asked to name by ballot the three competitors who, in their opinion, have accomplished the best all-around touring, and submit same to the commission appointed under the Deed of Gift. This information will be used by the commission in deciding the winner.

18. In order to be eligible to vote entrants must have completed the entire route and duly registered at each night stop, and fulfilled all other conditions asked by the committee.

19. Certifieates will be given to all entrants who sueeessfully finish the tour.

IX.—Road Regulations.

20. Obey laws and follow rules of road.

X.—Disqualifications.

21. Upon due notiee being served by the committee or the person in eharge of any car, it shall eease to run in the eontest, and the numbers shall be removed. It shall not reeeive any award; but it shall be mentioned in the reeords as having been disqualified, and the eontestant shall have no claim on the A. A. A. in respeet to non-publieation of its performanee or the publication of disqualification.

22. No notiee shall be served unless the person in eharge has been first notified of the aet which it is claimed should disqualify the ear. If the aet be disputed, aetion shall be postponed until the committee shall take evidenee and render a decision. The person so disqualified shall have no elaim on the A. A. A. of any kind or nature whatsoever.

XI.—Protests.

23. Anyone desiring to enter a protest must deposit ten dollars ($10) with a member of the eommittee, whieh sum will be retained by the A. A. A. if the protest is not sustained. He must submit his protest in writing, when it will be considered by the committee at the earliest praeticable moment and deeision rendered.

(1.) As to entries, protests must be made before the start.

(2.) As to unfair running, route, etc., within twenty-four hours of the occurrence.

(3.) As to any other matter, immediately after the tour is concluded.

XII.—Power of the Committee.

24. The eommittee shall have power to disqualify a car for traveling at a speed, in any place, whieh they may eonceive exeessive, without referenee to these rules.

25. The eommittee shall have power to make such examination of the ears as it may deem necessary.

"CLIMB TO THE CLOUDS" OFFICIALS.

The list of officials seleeted to conduct the annual "Climb to the Clouds" up Mount Washington, White Mountains, New Hampshire, July 17 and 18, has been announeed by Secretary W. J. Morgan, of the White Mountains Roads Improvement Association, under the auspices of which the event will be held. The list is as follows:

Honorary referee, Robert Lee Morrell, chairman Raeing Board of the A. A. A.

Referee, A. R. Pardington.

Judges, Charles J. Glidden, Lewis R. Speares, president Bay State Automobile Association; Harlem W. Whipple, and Elliott C. Lee, president Mass. A. C.

Timers, Chronograph Club of Boston, under the direetion of John C. Kerrison, president.

Examiners and weighers, S. A. Miles, general manager N. A. A. M., and M. L. Downs, New York Motor Club.

Clerks of eourse, C. H. Gillette, Hartford A. C., and A. B. Tucker, assoeiate secretary Glidden Tour.

Starter, F. J. Wagner, Chicago A. C.

Reporter, Alfred Reeves.

Announcer, Charles H. Hyde, president New York Motor Club.

Seorers, W. D. Woolson, seeretary A. C. of Vermont; Augustus Post, Automobile Club of America, and Louis R. Smith, secretary New York Motor Club.

Start of the Chicago-St. Paul Tour.

Special Correspondence.

CHICAGO, June 30.—Cheered by the farewells of hundreds of friends who had gathered to wateh them leave, thirty automobiles with 100 passengers left the clubhouse of the Chieago Automobile Club this morning on the Chieago-St. Paul interclub tour. With the first break of day, signs of life began to appear about the elub on Miehigan avenue. There were the last things to be done: tanks to fill, tires to pump up, numbers to tie on, and baskets to pack. Ira Cobe, president of the club, was one of the first to appear. Assistant Secretary Spangler was also early. By 7.30 o'cloek the boulevard was crowded with maehines.

A few minutes after 8 o'clock Arthur Gardiner and N. H. Van Sieklen, in a pilot car, a Rambler, started the rush up the avenue to Jaekson boulevard, and the St. Paul tour was on. Up in the front of the caravan was President Cobe. Driving near him was Miss Anna Andrews, of Chieago. She drove her own ear, a Reo. With her was a party of newspaper men. All along the way her appearanee was the signal for volleys of cheers.

MISS ANNA ANDREWS, ONE OF THE LADY AUTOISTS IN THE CHICAGO-ST. PAUL TOUR, AT THE WHEEL OF HER REO CAR.

By 8.30 A.M. the last car had got away, and those eleeted to remain in the hot eity, or to tramp the decks of erowded steamers, or the aisles of dusty excursion trains, went to their homes, envying the favored who were on their way over the eountry roads and winding pathways that led to the Twin Cities of Minnesota.

Starters and Their Guests.

Following is a list of starters, the ears they are driving and the guests on the tour:

C. D. Miley, White; S. K. Martin, Jr., Locomobile; C. H. Fosgate, White; G. E. Piekup, Adams-Farwell; L. E. Myers, Columbia; M. K. Weens, White; Neils Buck, Rambler; Jesse Barker, Pope-Toledo; F. W. Creelman, Thomas; C. A. Coey, Thomas; Dr. W. A. Pratt, Yale; Dr. John Gibbs Lovell, Columbia; Arthur Gardiner, Rambler; W. H. Brown, Meteor; Walter C. White, White; Allen Blanehard, Buiek; Edwin L. Thaeker, Stoddard-Dayton; Dr. W. W. Tarr, Yale; Miss Anna M. Andrews, Reo; Edward Parradee, Knox; Oliver Crosby, Packard; A. J. Dimon, Pieree; H. K. Sheridan, White; Graee M. Young, Locomobile; F. W. Cornish, Winton; J. S. Harman, Columbia; L. F. Garlock, Mitchell; Robert W. Spangler, Knox; F. W. Hedgeland, R. M. Neely, Ira M. Cobe, R. G. Hauselein, F. M. Joyce, W. J. Christians, Charles Webster, F. X. Mudd, A. K. Laytu, E. W. Teale, Gus W. Pieree, B. Mereil and wife, V. E. Alland, E. R. Van Duren, W. C. Hull, T. W. Ingersoll, Dr. E. L. Mann, Herbert Anderson, S. B. Fleming, Frily Glohoner, G. G. Gibson, N. H. Van Sieklen; Neils Buek, Frank H. Davis, E. Pratt, H. W. Schlueter, F. W. Creelman and wife and Helen Creelman, Joseph Beilfield, W. S. Kelly, A. L. Moore, Robert B. Upham and wife, Alton Schmidt, E. T. Corning, J. W. Bate, R. MaeLeod, Mrs. C. W. Hodgekinson, E. E. Roekwell and wife, Fred J. Pardee, William J. Atlee, G. L. Rothroek and wife, C. A. Bartholomew, Dr. A. C. Lee and wife, F. H. Rhodes, Hattie C. Rhodes, Jennie Rhodes, E. J. Rhodes, G. E. May and wife, Miss Jennie Manatroy, Miss Leah Rubenstein, E. C. Brown and wife, Miss Marion Sturtevant, A. T. Perkins and wife, Harold and Mildred Harman.

The party will spend four days on the road. The first stop will be at Roekford, this evening, for the night. To-morrow night the party will stay in Dubuque, Iowa. Sunday evening they will remain in Charles City, Iowa. Monday night, Austin, Minn., is the stopping plaee. On the afternoon of July 4, the Chieago people, escorted by the

Automobile Club of St. Paul, will enter that city, proud, probably tired, but happy in the remembrance of a touring trip of 490 miles, a new record for the Chicago club.

President Cobe carries letters to Gov. John A. Johnson, of Minnesota, from Gov. Charles S. Deneen, of Illinois, and John Farson, president of the Illinois State Automobile Association and vice-president of the American Automobile Association. Governor Deneen's letter was as follows:

"The Hon. John A. Johnson, Governor of Minnesota, St. Paul, Minn.

"My Dear Sir:—This will serve to introduce to you members of the Chicago Automobile Club, who have made the journey to your capital city overland to pay their respects to the Governor of Minnesota. They are types of our enterprising citizens and fitly represent the capable men who have made the name of Chicago a household word throughout the world, and I cordially recommend them to your courteous consideration.

"Yours truly,

"Charles S. Deneen."

Five members of the St. Paul club made the start with the Chicagoans, their cars having been shipped to Chicago to join the run. They were: Dr. E. L. Mann, T. W. Ingersoll, R. M. Neeley, A. L. Dimon and Oliver Crosby and family.

It is more than likely that the racers will not start for St. Paul next Monday morning. If they do, not more than two factories will be represented. The start is announced for 3 o'clock in the morning.

News note, date 2,005. "There are in New York several garages built exclusively for horses owned by wealthy men."

ARRIVAL AT ROCKFORD.

First Day's Run Ends with Merrymaking as Guests of Rockford Club.

Special Correspondence.

Rockford, June 30.—The thirty cars that left the Chicago Automobile Club at 9 o'clock this morning are, with two exceptions, safely housed at Rockford to-night. A. J. Diamon, with a Pierce Stanhope (No. 41) broke a crankshaft at Addison, twenty miles out, and Dr. W. A. Pratt, with a Yale (No. 6) broke a spring at Harmony, thirty miles out. These cars will be repaired, and will join the rest of the tourists Saturday.

The run of ninety-three miles to-day was a delightful pleasure trip. The roads were in fine condition, the sun hid behind a cloud, and the ride was cool and free from dust.

The party was met at Belvidere by the Rockford Automobile Club, which acted as escort into Rockford.

At this place the tourists were guests of the Automobile Club, which offered a steamboat ride up the river as the evening's entertainment. Dinner and dancing whiled away the time, with a few speeches interspersed to give the orators a chance.

A rainstorm to-night gives promise of endurance run weather and roads for Saturday, but the tourists retired at 11 o'clock, to be prepared for an early start for Dubuque, 105 miles, to-morrow.

Robert W. Spangler, secretary of the Illinois State Automobile Association, is making his second trip over the route with the pilot car "Blazing the Way," a 16-horsepower Knox. This car made the trip two weeks ago, covering the 500 miles without any engine trouble or even a tire puncture, although the roads then were exceptionally bad on account of severe rains.

The farmers to-day showed their goodwill by decorating their houses and throwing bouquets of flowers into the cars. There are about twenty ladies on the trip, and all are enjoying it so far.

AUTOS AND YACHT RACES.

Interesting Track and Lake Events Arranged for St. Paul Carnival Week.

Special Correspondence.

St. Paul, July 1.—There will be more than 200 starters in the various events scheduled for the race meet which will begin at the Hamline race track next Tuesday afternoon at 3 o'clock. If the weather is favorable, Barney Oldfield, Louis Chevrolet, Webb Jay and possibly others will enter the one-mile dash against the world's circular track record.

"Everything points to a successful meet," says Secretary Ledy, of the St. Paul club. "We have received more entries than we expected. Among the fast cars that will be here are the Reo *Bird, Comet,* Packard, *Grey Wolf, Lightning Bug,* Pope-Toledo, and Thomas, *Tornado.* The races will be held Thursday, July 6, and Saturday, July 8. The Hamline track is in good condition."

Special entertainment has been arranged for the lovers of yachting who are taking part in the tour to St. Paul. A regatta has been arranged, to be held at White Bear Lake Friday afternoon, July 7, and most of the fast Minnesota yachts have entered, among them *White Bear, Alpha, Moccasin, Barracouta* and *Wanderer.*

RAMBLER PILOT CAR, WITH LOAD OF CONFETTI, STARTING ON CHICAGO-ST. PAUL TOUR—ARTHUR GARDINER AT WHEEL.

Harmsworth Cup Entries.

Two boats will race under the American flag in this year's contest for the Harmsworth cup—or, as it is officially called, the British International Trophy race—which will be held in Arcachon Bay, near Cherbourg, France, on September 11. One of the boats will be the *Challenger,* built last year by Smith & Mabley, of New York, for the Harmsworth cup race; and the other will be a boat, as yet unnamed, built by the same firm and similar in power, dimensions and general construction, to the *Challenger.* The *Challenger* is now the property of W. Gould Brokaw, by whom she has been entered in the great race; while the new craft belongs to the well-known automobilist, E. R. Thomas, to whose order she was built. In the accompanying engraving she is shown going at speed with her owner at the wheel.

While the *Challenger* failed in the attempt to lift the cup last year, her seemingly poor performance was due to her raw condition and lack of tuning up owing to unavoidable delays in getting the boat out of the shop and shipped across the Atlantic. Since then, after tuning up, she has done some remarkably fast traveling, and is now in far better fighting trim than when she entered last year's race.

The new craft, designed by Crane and fitted with S. & M. Simplex eight-cylinder motor of 150-horsepower, is in a general way similar to the older boat. The dimensions are the same—just under 40 feet long over all, and 5 feet 9 inches beam. The motor is also the same, built from the same drawings and patterns. Slight differences exist, however, in the lines of the hull, the result of the experience with the *Challenger,* the new boat being somewhat similar to the old *Vingt-et-Un;* while the motor is equipped with sheet copper water jackets instead of cast iron, and the inlet valves have been made slightly larger, being of the same size as the exhaust valves. Slight changes have also been made in the construction of the carbureter, with the idea of rendering it more efficient; and a magneto is used for the source of ignition current supply.

The lightening of the motor, together with the improved methods of construction used in building the hull, have resulted in a total saving of weight of nearly a thousand pounds—no small item in an extreme racing machine—and at the same time the motor has proved a little more efficient than that of the *Challenger.* Several trial runs have been made, and the builders state that the new boat has a speed of from half a mile to a mile an hour better than the older one. Both racers will be shipped to France some time this month, and will undergo their tuning-up process there. There will be ample time for preparatory work, and every opportunity to forestall such accidents as can be avoided by the working-out process.

The winner of last year's Harmsworth cup race was the *Napier Minor;* hut she was protested by the second boat, the French *Trefle-a-Quatre,* because she had been substituted for *Napier II,* which had qualified for the final, but was disabled. The protest was sustained and the cup went to France.

CROWD WATCHING THE AUTO BOAT "WINTON" AFTER THE LAUNCH.

POWER BOAT RACE PROGRAM.

Special Correspondence.

BOSTON, July 1.—The Eastern Yacht Club of Marblehead, the leading yachting organization of Massachusetts, has announced an interesting series of power boat races, to be held off Marblehead harbor this summer. There will be four open races, the first to be held next Tuesday, July 4; the second on Friday, August 18; the third on Saturday, August 26, and the fourth of Saturady, September 2. Prizes of silver are offered in each event, and there will be nine classes providing they fill, on each day.

Besides the above events, the club announces three special open races for power boats, to be given on Thursday, Friday and Saturday, July 27, 28 and 29. In addition to the regular prizes, Rear Commodore W. O. Gay has offered a cup which will be awarded to the boat which, having started in each race, makes the smallest total elapsed time for the three races, four laps to each race.

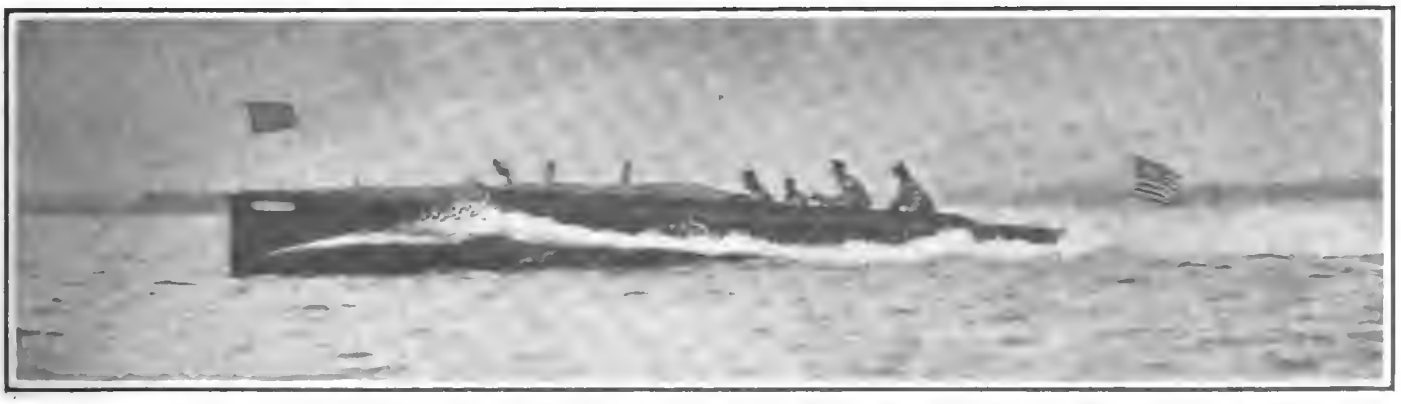
WINTON AUTO BOAT LAUNCHED.

Special Correspondence.

CLEVELAND, O., June 28.—A new auto boat which is likely to rank among the swiftest is the *Winton,* which was launched at the Clifton Club Grounds, Lakewood, near Cleveland, this morning. The trim forty-footer slipped from the ways in regular ocean-vessel fashion in the presence of eighty-five invited guests and the employees of the Winton factory, the occasion being made a Winton holiday.

Among those present were Courtland D. Cramp, of the Cramp Shipbuilding Company, and Louis R. Speare, the boat's future owner. Miss Caroline M. Speare christened the craft after traditional custom by breaking a bottle of champagne over its bow, after which it was given a trial trip, with Alexander Winton at the helm.

This is the first venture of the Winton Motor Carriage Company in the auto boat field. The boat is equipped with three four-cylinder fifty-horse power Winton automobile motors, and the hull is the product of Crowinshield. After a thorough try-out on Lake Erie it will be taken East and entered in the more important power hoat events of the season.



NEW AUTO BOAT FITTED WITH SMITH & MABLEY MOTORS ENTERED IN HARMSWORTH CUP RACE BY E R. THOMAS.

A. A. A. Race Meeting at Morris Park.

THE National Championship meet of the American Automobile Association was held at Morris Park, New York, on Monday and Tuesday, July 3 and 4, and an excellent program of races was arranged. The track, though dusty, was in good condition, and good racing was looked for on the opening day.

Monday's race meet, however, was shorn of much of its interest by a series of unfortunate accidents that scratched from the program the *Reo Bird*, the 90-horsepower Fiat driven by Paul Sartori and the new six-cylinder Thomas Flyer. The *Reo Bird*, while practicing before the races, skidded on the clubhouse turn, lost a tire and went through the inner fence, doubling up three wheels but doing no further damage, and throwing the driver, Dan Wurgis, who rolled over on the grass, dazed for a moment, but unhurt. Paul Sartori got lost in the dust of the back turn during his first race of the day—the heavyweight championship—and went through the inner fence, his huge machine picking up a twenty-foot length of iron pipe from the fence and carrying it into the field. Unfortunately there was a sixteen-year-old boy, Joseph Holihan, just inside the fence, and the flying iron struck him, inflicting serious injuries. His right leg was said to have been broken in two places and his left leg in one place; and it was thought his skull was fractured. Sartori was uninjured, but his nerves were all gone. In the same race the Thomas six-cylinder racer was disabled. While going around the turn at the clubhouse end of the track the right-rear wheel collapsed, and Roberts, who was driving, was rather roughly tossed about for a moment, but was not seriously injured. Just about this time news came filtering in from outside that two touring cars, one belonging to C. Oliver Iselin and the other to Charles Dale, had collided and that two or more ladies were painfully cut and bruised. People began to wonder if anything more was going to happen, but fortunately there were no more mishaps.

The racing surprise of the day was provided by Walter Christie's 120-horsepower racer, with a four-cylinder engine placed transversely at each end. In the first heat of the inner-club race for Dr. H. E. Thomas's trophy the double-ender representing the A. C. A. was pitted against the White steam racer of the Chicago A. C., and a grand race was anticipated. No sooner had the start been made than the gasoline car began to pull away from the rakish steamer, and the crowd immediately sat up and took notice. And when in the long straight of the back stretch Christie shot ahead, distancing the White, the people shouted, and it looked like a procession. Christie lost a front tire in the back turn, however, and could not even finish the first lap; the White finished the four laps in leisurely time and took first place. The White car also won the heavyweight championship race in which the Fiat was driven by Sartori and the Thomas car came to grief; Webb Jay's only remaining competitor, Chevrolet, in Major Miller's 90-horsepower Fiat, was beaten by 19 seconds, the White making the last mile in the remarkable time of 49 3-5 seconds, according to the official timers. The 80-horsepower De Dietrich racer had been entered in this event, but was withdrawn.

In the Diamond Cup free-for-all the White and the Fiat again came together, with the same result, only that the White won by a wider margin. Later in the day Christie made an exhibition mile in 51 1-5 seconds, equaling the track record, his car running well.

The lightweight and middleweight handicap was won by a 24-horsepower Fiat. The tourists' novelty race went to the 12-horsepower Decauville, because the Wayne 16-horsepower car, which came in first by a wide margin, failed to obey the rules with regard to stopping for passengers. Guy Vaughan and the famous Decauville won the unlimited pursuit race, overtaking Eddie Bald in the 35-40-horsepower Columbia in 3 1-3 laps. The Bronx handicap was run in two heats and a final, the winner of the final being Comacho's 12-horsepower Franklin.

Austrian Industry and Market.

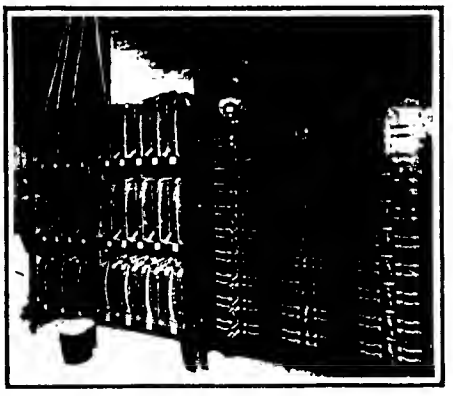
Some impetus was given to the automobile industry in Austria, especially in Vienna, by the fifth annual international automobile exposition, held there during the last two weeks of last March, under the auspices of the Austrian Automobile Club. The purpose of the show was to foster the trade in self-propelled vehicles for industrial purposes as well as for pleasure.

The development of the industry has been slow, it even having been said that it was confined to the manufacture of motorcycles. Only one automobile factory was built in Austria last year. The growth of the industry was threatened to be further retarded by a bill that was before the Parliament about the time of the show for the regulation of the use of automobiles; but the manufacturers and dealers collected statistics showing that in fact the use of automobiles was less dangerous than that of most other means of transportation, and that even dog-carts and children's carriages caused more accidents in Vienna than did automobiles. A commission was appointed and trials arranged, in which twenty-four of the commissioners, accompanied by army experts and members of the general staff and the technical corps with military cars, rode about the city and into the country to study grades. Apparently the trials were instructive, for the manufacturers and dealers are satisfied, according to United States Vice-Consul Hogue, that the Austrian industry is no longer threatened by any contemplated radical regulations.

The automobile business in Austria does not offer inducements to Americans, considering the favor and sale of machines at home, and Mr. Hogue advises that until the home market has been supplied and it becomes necessary for our manufacturers to sell against hard competition and at small margins of profit, the market in Austria ought not to claim their particular attention.

Pope Garage Equipment.

Electric automobiles form considerable percentage of the cars handled at the garage of the New York branch of the Pope Motor Car Co., and therefore it is necessary that there should be adequate facilities for taking care of the batterics—the storage battery being the most prominent portion of



CHARGING SWITCHBOARD.

the electric car, so far as the garage is concerned. Current for charging purposes is handled by a bank of twenty-five Cutler-Hammer rheostats, which, together with the switchboard used in charging small batteries, is illustrated by the accompanying engraving. The rheostats seen on the left, have a capacity of fifty amperes, with a voltage range of from 50 to 125 volts. Charging plugs are located at various points throughout the building, and all are controlled from the switchboard, where one man can watch the progress of charging each battery by taking frequent readings. The switchboard controls current for twenty-four charging plugs for ignition batteries, and the range of current is from half an ampere to ten amperes, with any desired voltage.

One of the features of the battery repair department is the manner in which the electrolyte is handled. Vats containing the fluid are elevated above the floor level, so that battery cells are filled by gravity, thus avoiding the necessity for carrying the electrolyte around in buckets, and the accompanying sloppiness and mess. Hoists are provided for handling batterics, and pits are conveniently located so that work on motors and other parts may be done without jacking up the cars.

Wayne Light Car.

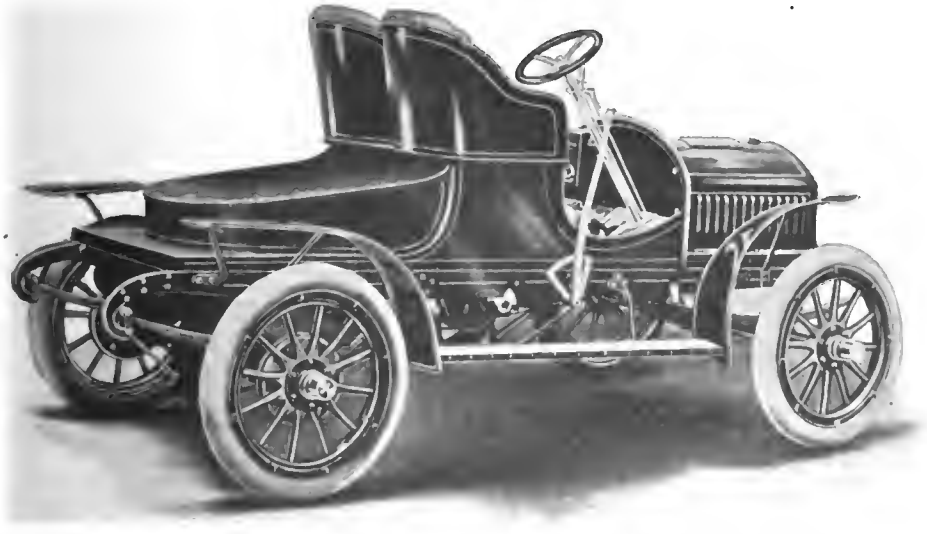
Now that manufacturers seem to have little difficulty in placing on the market cars that will run and, as a rule, run satisfactorily, the buying public is becoming more particular, and instead of being satisfied with anything on four wheels that will travel and keep on traveling, a machine of appearance is now demanded and expected. This demand has been recognized by many manufacturers, including the Wayne Automobile Co., of Detroit, Mich., whose Model D 16-horsepower light car is illustrated herewith. The round-topped hood, the individual seats and the sloping, round-ended rear deck combine in giving the machine a very smart appearance, while its 16-horsepower motor will, it is stated, carry it over any place where a car can go.

The motor is of the double opposed cylinder type, with a bore and stroke of five inches each, integral water jackets and valve chambers, and mechanically operated valves. The valves are all alike and interchangeable; the valve operating mechanism—cams, shafts and two-to-one gears—run in oil in the engine crankcase, where they are out of the way of dust and dirt and accidental knocks. Cooling of the cylinders is effected by water; the radiator occupies the usual position at the front end of the hood, and water is circulated by means of a double gear pump, gear-driven from the half-time shaft. Four gallons of water fill the cooling system, and is said to be sufficient for two hundred miles running under ordinary conditions. An automatic carbureter, of the float feed type, converts the gasoline into vapor and mixes it with the requisite volume of air, the mixture being practically correct at all motor speeds; the throttle is controlled by a small lever on the steering wheel column. Three concentric cylinders are used in the construction of the muffler, which is said to efficiently deaden the noise of the exhaust.

Planetary transmission, giving the usual two forward speeds and one reverse, is employed; the bearings are of bronze, and the gears all run in an oil bath in the casing. The drive is, of course, direct on the high speed. A lever at the side of the car controls the high speed and the reverse, while the low or hill-climbing gear is engaged by means of a pedal. Internal expanding hub brakes are fitted for emergency use, while for regular braking the reverse is used. Drive is by single chain to a sprocket on the live rear axle, the axle running on roller bearings.

Weldless steel tubing of heavy wall section forms the front axle; the front wheels, as well as the rear wheels, run on roller bearings. Wheels are of the wood artillery pattern, 28 inches in diameter, and are fitted with 3-inch detachable tires. The frame is of pressed cold-rolled steel with heavy corner plates; the motor is hung on the main frame, there being no sub-frame.

As the illustration shows, the body is made with divided seats, the car being built for two passengers only. The upholstering is in buffed leather, with curled hair padding. The finish is Brewster green, body and running gear being of the same color; while the polished brass trimmings of the hood form a fine contrast to the dark color of the body.



WAYNE MODEL D 16-HORSEPOWER LIGHT CAR, WITH DOUBLE-OPPOSED MOTOR.

BATES 7-HORSEPOWER RUNABOUT WITH SINGLE-CYLINDER HORIZONTAL ENGINE.

Bates Runabout.

Many persons who contemplate purchasing automobiles consider it a matter of great importance that the motor should be located under the hood; but still cannot or will not go to the expense of buying a car of an expensive type. The requirements of this class seem to be met by the two-passenger light runabout brought out by the Bates Automobile Co., of Lansing, Mich., whose little car is illustrated in the accompanying engraving. Not only the motor, but the entire power and transmission mechanism is covered by the hood, a long chain driving to the live rear axle, leaving the body of the car entirely free and clear.

The 7-horsepower engine is horizontal, with a single water-cooled cylinder, and is located on the left hand side, with its crankshaft lying across the frame; the fly-wheel is directly in the center, and the planetary transmission gear on the opposite, or right hand side. The valve end of the cylinder points forward, coming just under the forward end member of the frame. There are no packed joints in any part of the engine, the head, water jackets and valve chambers being cast integral with the cylinder. The inlet valve is automatically operated, and has an opening of 1 1-2 inches, the exhaust valve being of the same size. Crankshaft has 3 1-2 inch bearings and is 1 1-2 inches in diameter; the counter-weights are so attached that it is impossible for them to break loose and smash things—a good point, for a loose counterweight can do an incredible amount of damage in an incredibly short time. Drop forged steel of H-section forms the connecting rod, which is 12 1-4 inches long between centers and has bearings 2 1-4 inches long. The motor is rated at 7-horsepower. Jump spark ignition is fitted, the time of ignition being con-

trolled by a lever on the steering wheel. A special form of carbureter is used; this carbureter has no float, and is said to be automatic in supplying the same quality of gas at all motor speeds. Further, the manufacturers state that no priming is necessary when starting the motor, and that the mixture will never be so rich as to foul the spark plug and the inside of the cylinder after the carbureter has once been properly adjusted.

The frame is of angle steel, and the front part, where the motor is hung, is filled with wood in the angles. Springs are three-quarter elliptic. Roller bearings are applied to the live rear axle, while the front wheels run in ball bearings; the front axle is of the popular tubular type, fitted with Elliott steering knuckles. The artillery wheels, 28 inches in diameter, are fitted with 2 1-2 inch clincher tires. There are two brakes; a regular service brake on the differential, operated by a pedal, and contracting band brakes on drums on the rear hubs, operated by a lever at the right hand side of the driver. One lever controls the two forward speeds and the reverse, and the speed is said to be variable from two to thirty-five miles an hour. Wheelbase is 76 inches and tread standard. The weight of the car is a little more than 900 pounds.

Foreign News Notes.

Prince Henry, of Prussia, Princess Charlotte, of Saxe Meiningen, and the Grand-duke of Mecklenburg-Schwerin are among the seventy entrants for the Herkomer competition in Austria. The two first-mentioned royalties are brother and sister of the German emperor. Other entries have been received from England, the United States, Austria, France, Belgium, Switzerland and Sweden, thus making the contest a most representative one in every way.

Rumor has it that Baron de Zuylen is thinking of resigning his position as president of the Automobile Club of France, and that Prince Pierre d' Arenberg would, in that case, be nominated as his successor.

A "Gordon Bennett March," in rag-time, is about to appear for sale; the composer is a Frenchman.

Children's motor clothing has become a feature of the big London establishments owing to the demand for sufficientlv workmanlike protection against wind, wet and dust for the little ones when on tour. A waterproof bag to envelop the feet and usually bare legs of small boys and girls is one of the principal requirements, as well as goggles with plush pads and showerproof overalls.

The firm of Panhard & Levassor has abandoned the manufacture of its 7-horsepower car, and will instead market a three-cylinder 8-11-horsepower machine, which has been under test for some time.

Mr. Kipling says that motorists now "move in the odor of sanctity." The next time an automobile passes you will realize what sanctity smells like.—*Exchange.*

Letter Box

Municipal Licenses Not Recognized.

Editor THE AUTOMOBILE:

[225].—On a tour I shall make this Summer I will pass through the following States: Indiana, Ohio, Pennsylvania, New York, Connecticut, Rhode Island, Massachusetts, New Jersey, Vermont, New Hampshire, and Maine.

Will my Chicago license and number (we have no State law in Illinois), be enough in any or all of these States, or must I register in any of them, and if so which ones? I will not be in any one State to exceed two weeks. C. E. J.

Chicago.

None of the State laws requiring registration provides for the exemption of owners of automobiles registered in and carrying the license numbers of cities. Some of the laws exempt non-residents who are registered in any other State, territory or federal district; Michigan includes also foreign countries; but other States exempt only persons registered in the State or territory in which they reside. You will see, therefore, that municipal licenses are not recognized under the State laws.

Your only absolutely safe and legal course will be to take out a license in every State entered. You might get through any or all of the States named without trouble, on the strength of your Chicago license, through either the leniency of the police or their unfamiliarity with the new laws in their respective States. Apparently the spirit of the lew is to exempt all non-residents who are registered elsewhere in such way that their identity may readily be traced, but the letter of the law does not fit the case.

We give you herewith excerpts on the point from the laws of the several States named:

INDIANA.—Non-residents are exempt if they "have complied with *any* law requiring the registration of owners in force in the State, territory, or federal district of their residence, and the registration number showing the initial of such state * * * shall be displayed on such vehicle." The phraseology here might be interpreted to apply to the ordinances of cities within the State of residence.

OHIO.—The State law does not require registration. An ordinance now pending in Cincinnati exempts non-residents if they are registered in any other "municipality or State."

PENNSYLVANIA.—Non-residents must register with the "prothonotary" or the treasurer of a city or county in the State. A new law passed this year requires registration with the State Highway Commission, but the new law, we understand, does not become effective until next January.

NEW YORK.—Same as Indiana.

CONNECTICUT.—A new law just passed by the Legislature provides that "any non-resident * * * who shall have complied with the laws of any other State or territory of the United States, requiring the registration of owners of motor vehicles * * * and the display of identification numbers, and who shall cause the identification numbers * * * together with the initial letters or letters of the state or territory issuing the same to be displayed on his motor vehicle while used or operated upon the public highways of this state, may use such highways, for a period not to exceed fifteen days in any one year * * *" unless he should be convicted of violating the speed laws.

RHODE ISLAND.—"Automobiles * * * owned by non-residents * * * and driven by a person residing and registered in some other state may be operated on the roads of this state."

MASSACHUSETTS.—A non-resident who "has complied with the laws relative to motor vehicles and the operation thereof of the state in which he resides" may operate on Massachusetts roads for not exceeding fifteen days without registering, provided his car has "displayed upon it the distinguishing number or mark of the state in which the owner resides, and none other."

NEW JERSEY.—Non-residents must register with the Secretary of State.

NEW HAMPSHIRE.—"Automobiles * * * owned by non-residents * * * and registered in some other state may be operated * * * subject to the speed limitations."

VERMONT.—Same as New Hampshire.

MAINE.—Same as New Hampshire, except where prohibited by special law or town ordinance duly authorized by the Legislature.

Perfect Roads in Ontario.

Editor THE AUTOMOBILE:

[226.]—We have here a club of about twelve members. Last season several interesting club outings were held. Several new machines are due here shortly and I look for an increase in our membership. The roads through this part of Ontario are perfect for autos and a large number of American tourists are to be seen driving through from Buffalo to Detroit. The run here from Buffalo via Niagara Falls is magnificent, and should be taken in by all tourists touching Buffalo.

HAMILTON AUTOMOBILE CLUB,
James Moodie, Sec'y-Treas.

Hamilton, Ont.

Driver, Not Mechanician.

Editor THE AUTOMOBILE:

[227.]—In reading an article on the French elimination trials, published in THE AUTOMOBILE for June 22, I noticed an error that has been made by a number of journals since the last elimination races, and should be corrected. Mr. Gustave Caillois did not drive last year as the mechanician for

Thery, but drove a car himself; numerous punctures prevented his being placed at the finish. As a matter of fact, Caillois' actual running time last year was considerably better than that of Thery, and had he not been troubled with punctures—I think he had eleven—he certainly would have won the 1904 elimination race. This year's Richard-Brasier team was exactly the same as it was last year, namely, Thery, Caillois and Stead.

E. B. GALLAGHER.

New York.

Weak Mixture and Back Firing.

Editor THE AUTOMOBILE:

[228].—With regard to query No. 216, by J. L. S., in the "Letter Box" department of THE AUTOMOBILE of June 22, while the cause you suggested (slow closing of the inlet valves) is very likely at the bottom of the trouble, yet it may be due to a weak or slow burning mixture or to the spark not being sufficiently advanced. With a weak mixture combustion may not be completed until the motor has finished its exhaust stroke, or even until it has started its suction stroke. This is especially true at high speed. In this case the incoming gas is ignited and the flame passes back through the inlet valve to the carbureter. The remedy is to increase the richness of the mixture. In case the car seems to give full power at ordinary speeds and the carbureter is of the automatic air-valve type, the tension of the spring of the automatic air valve should be slightly increased. If the carbureter is one in which opening the air valve opens at the same time an extra air supply valve, the gasoline supply will have to be increased if the ratio of the throttle opening to the extra air opening cannot be altered.

Back firing may also be caused by retarding the spark suddenly when the engine is at high speed. The remedy in this case is first to slow the engine by means of the throttle and gradually retard the spark as the speed decreases. HAROLD H. BROWN.

Boston, Mass.

Other correspondents have made suggestions similar to that of Mr. Brown—that the back firing might have been caused by a mixture so weak that it continued to burn until the next opening of the inlet valve. It would be interesting, and doubtless would be appreciated by our readers, if J. L. S., after getting his engine running properly, would state what the trouble proved to be and how it was remedied. In fact, if correspondents would give their fellow-automobilists the benefit of their experiences in this way much good work would be accomplished, and no one would be forced to wonder whether the suggested remedy was the correct one.

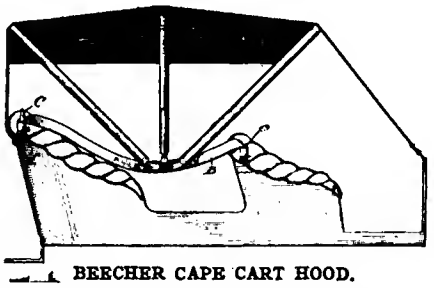
Fred Richardson of this city has purchased an electric automobile, and now will not have to take so many steps in working. —*Boone, Ia., Standard.*

Patents

Cape Cart Hood.

No. 792,112.—Wm. Beecher, of Chicago.

A cape cart hood with a mounting *B* so formed that it can be put in the irons *ef*, provided for a regular canopy top. It can



BEECHER CAPE CART HOOD.

be used only with a rear entrance tonneau. *C* indicates a prong to steady the bow when folded back.

Steering Gear for Launches.

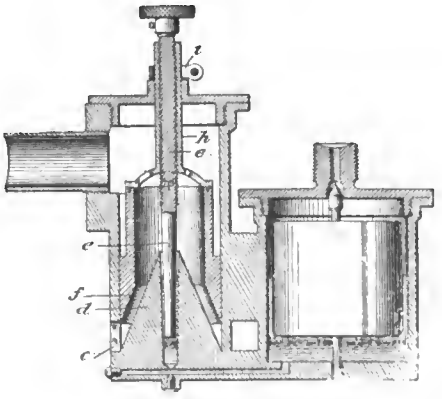
No. 792,121.—J. J. Donovan, of Peabody, Mass.

A rack and pinion steering gear of the usual sort, to which is added a split sleeve clamp for the rack shaft, by which it may be secured and left in any position required, as, for example, straight ahead.

Carbureter.

No. 791,810.—J. T. Orr of Dillon, Montana.

This carbureter is designed to secure simultaneous regulation of the air passage and the spraying orifice, thus dispensing with a separate throttle. Relative adjustment between the two may also be obtained. In the drawing, *c* represents an air inlet, of which a number are disposed around the base of the mixing chamber. The air passes upward through the annular space between *d* and *f*, the latter of which is movable up and down for regulation. Attached to the



ORR AUTOMATIC CARBURETER.

upper end of *f* is a hollow threaded shank *h*, in which is screwed the stem *e*, whose lower end is slightly tapered and enters a tapering hole in *d*, so that the gasoline spray orifice has an annular shape. As *f* is moved downward *e* likewise is moved downward, thus reducing, on account of its taper, the outlet for the gasoline. Simultaneous movement of *f* and *e* is secured by the lug *i*.

Grease Cup.

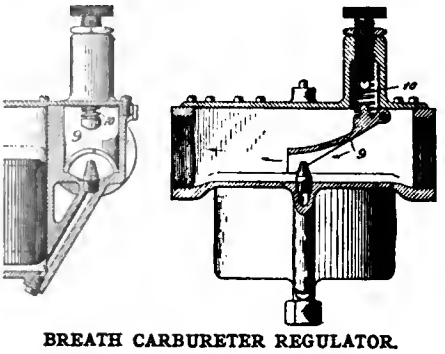
No. 792,858.—W. E. S. Strong, of Chicago, and C. I. Overton and G. C. Schoenborn, of Hartford, Conn.

A screw cap grease cup in which the threaded cap containing the grease is prevented from jarring loose by a split spring, threaded externally and arranged between two fixed members of the cup, so as to apply an elastic pressure to the threads of the cap to resist turning of the latter.

Carbureter Regulator.

No. 791,447.—W. L. Breath, of Jersey City, N. J.

This is a simple and apparently effective device for varying the cross sectional area of the air passage past the spray nozzle. The air passage is located at one side of the float chamber, and is partially choked by a damper *9*, pivoted at one end as shown,



BREATH CARBURETER REGULATOR.

and movable up and down in the air passage, which is rectangular in section, as seen in the partial view. A spring *10* normally holds the damper down as shown, and it is elevated to a greater or less extent according to the intensity of the suction, thus preventing the velocity of the air stream past the nozzle from becoming so great at high motor speeds as to suck an excessive amount of gasoline.

Carbureter.

No. 792,670.—C. D. Shain, of Rockaway Park, New York.

A carbureter whose spray nozzle consists of a socket in which a metal ball seats. This ball is allowed to lift to a greater or less extent under the suction, the extent of this lift being regulated by suitable means. A throttle valve is combined with the carbureter, and an automatic intake valve below the spray nozzle controls the intensity of the suction.

It isn't necessary to look at the world through rose-colored spectacles; auto glasses will give a very bright view.—*New York Mail.*

The Harrington livery barn at Goodland has added an automobile to its vehicle outfit. An innovation indeed for a country town.—*Rennselaer (Ind.) Democrat.*

THE AUTOMOBILE

VOL. XIII. No. 1

Published every Thursday by

THE CLASS JOURNAL CO.,

Flatiron Building, Madison Square,

NEW YORK CITY.

Cable Address - - - - Autoland, New York
Long Distance Telephone - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2.00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 5 o'clock p. m. Monday for the issue of Saturday following.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies Printed in 1904,	- - -	**639,300**
" "	**This Issue,** - -	**14,000**
" "	**Since Jan. 1,** -	**377,500**

The Same Old "Times."

Readers of the *Times'* editorial in our news columns, and who recall our previous utterances on the subject, will share our "disappointment" that the New York *Times* has not changed its views about automobiling, and is not likely to. Not that it matters much to the well-informed what the *Times* thinks or says about automobiles, their construction or use; but there are doubtless many persons who read the *Times* who know little or nothing practically about automobiling and who, reposing confidence in the information and fairness of that paper, are sure to be misled by its editorial utterances on the subject. We have never been able to determine whether the attitude of the *Times* was due to gross ignorance of the subject or to malice—possibly a mixture of both. Its characteristic discussion of automobile matters without knowledge is very well displayed in its editorial criticism of THE AUTOMOBILE in these words: "It has harmed, not helped, the automobilist by defending him through thick and thin." That statement is absolutely and unequivocally false, as every reader of this paper knows. THE AUTOMOBILE has from the beginning advocated a strict compliance with the laws, has consistently discouraged scorching, even refusing to publish accounts of so-called record-breaking road trips, has expressed itself in favor of jail sentences for habitual offenders, and was the first to publicly advocate the endorsement of convictions on drivers' licenses.

Another typical exhibit of the *Times'* methods—two-faced when necessary—is contained in the following parallel passages from its editorial pages:

"The race was utterly futile, proving nothing of interest and value to any one concerned in promoting 'sport' or the mechanical development of the practical and useful motor vehicle."

Extract from editorial on Vanderbilt race *New York Times*, October. 1904.

"From the first appearance of these vehicles the Times has fully and cordially recognized all their great possibilities for both business and pleasure, and its hostility has been, not to automobiles or automobiling, but to the abuses of them both—not to the manufacturers or the owners of automobiles, but to the frequent misapplication of ingenuity by the first and the too frequent lawlessness and discourtesy of the second."

Extract from editorial *New York Times*, June 26, 1905.

This is just a sample of what the *Times* had to say about the Vanderbilt race—the most notable achievement of a great and growing industry which gave the American car a standing in the eyes of the world that it never before possessed. And the race was held in strict compliance with the provisions of law.

The position which the *Times* has made for itself in the estimation of all fair-minded persons in the trade is certainly not an enviable one. This can readily be learned in a few minutes' conversation with any of the leaders in the trade in New York. The conspicuous scarcity of trade announcements in its pages (though it makes strenuous efforts to secure business) is an outward and visible sign of the feeling of the trade.

Perhaps the exigencies of trade will teach the *Times* some day that there is just as large a proportion of honorable, law-abiding citizens in the automobile industry as in banking or stock brokerage, or any other class with which it is more familiar. The trade would have more respect for the *Times* were it consistent in its denunciation of the automobile and not affecting a virtuous attitude now that there is valuable patronage in the gift of the industry.

✷

Large Internal Combustion Motors.

While public attention has been centered on the development of the type of internal combustion motor used in automobiles and motor boats, the stationary gas engine of large power has been making not less remarkable, if less publicly conspicuous, progress. Having made the automobile what it is, displaced steam for small boats and other purposes where small economical power is required, the gas engine now seriously threatens the large steam engine, hitherto unapproached for economy and reliability, and in many instances has actually displaced its older rival. This is remarkable in itself; but it is doubly significant when it is considered that the large gas engine is the result of but six or seven years' development, and that the problems that must be solved are much more difficult than in the case of steam. A paper on "The Growth of Large Gas Engines on the Continent," recently read before the British Institution of Mechanical Engineers, at Liege, by Rudolphe E. Mathot, of Brussels, takes up the subject extensively and in a manner most interesting to gas engine designers and students. In leading up to a description of the various improvements that have made possible the building of an internal combustion engine of 3,600-horsepower, where six years ago one of 200-horsepower was considered remarkable, M. Mathot refers to the recognized difficulties attendant upon the work as follows:

"Steam is * * * a fluid much less complex in nature than explosive mixtures. The action of steam is governed by precise laws which pertain only to the sphere of physics, while the production of combustible gases and their mode of evolution under the form of explosive mixtures in engines are as much within the domain of chemistry as of physics and mechanics. Although the generic theory of gas engines has rested up to the present on a series of hypotheses which have not yet received experimental confirmation, these engines have gained ground in application to various industries with exceptional rapidity compared with any other kind of motive power."

A perusal of this document, which will repay the student, shows that many interesting developments have accompanied the growth of the stationary internal combustion motor. Hit-and-miss governing, for instance, has been completely abandoned, as has also the plan of varying the strength of the mixture; the modern effort is to automatically govern the admission of a mixture of uniform quality, so that the quantity shall be proportioned to the power required. Valves have assumed many forms, though the majority are modifications of the familiar poppet; valve actuating mechanisms consist usually of eccentrics and "roller-path levers." The cooling problem has been accompanied by the difficulty of making large cylinder heads and other castings that will safely withstand the combined pressure and unequal expansion by heat; this has been accomplished by careful designing. Not only cylinder heads and cylinders, but pistons and rods, have been water jacketed; and in one or two cases a hollow casting containing cooling water has been placed in the combustion chamber to reduce the internal temperature. The valve chambers, seats and stem guides are all thoroughly jacketed. An interesting fact is that in some large engines the water jackets are made integral with the frame castings and the cylinder so attached as to be free to expand. Ignition is almost always by make and break with magneto to supply the current; and an interesting point is that in

many large cylinders there are two simultaneous sparks in order to produce more rapid and uniform combustion of the charge. Starting these huge machines is commonly accomplished by compressed air, as the combustion of a charge while the piston is at rest produced stresses too great for safety.

The gas for these large engines is usually furnished by suction producers or by the waste gases of blast-furnaces; in some cases a separate pump serves to compress the charge and force it into the cylinder, while in others the familiar plan of making the piston act as its own pump is followed. Both two-cycle and four-cycle engines are made in large powers.

That many of the problems involved have been successfully solved is clearly shown by the numerous installations of large internal combustion engines not only on the Continent, but in the United States. Doubtless it will be only a matter of a little time before the great steam engines that now furnish the power to move the wheels of the world's commerce will be replaced by more economical and equally reliable internal combustion engines, whose fuel will be supplied by waste products or by gas-producing materials of the cheapest kind.

✱

Tours of National Interest. This month is made unique in American automobile history by the holding of two highly organized automobile tours, of unusual length and duration, one in the Middle West and the other in the New England States. The Chicago-St. Paul tour, which was begun last Friday by thirty cars, is the most ambitious attempt of this kind in that section, and is one of the straws that indicate how the West is coming into its own in automobiling. The carnival in St. Paul that fills the remaining days of this week, following the arrival of the tourists in the Twin City, will conclude just before the touring contest for the Glidden trophy begins in New York City, next Monday. Present indications are that a larger number of cars will start in this than in the Western event. The distance to be traversed—approximately 1,000 miles—is twice as great and the time to be consumed three times as long as in the Chicago-St. Paul tour.

The Pittsburg endurance run of October, 1903, was the last of the "reliability tests" promoted mainly in the interests of the manufacturers as a means for demonstrating the endurance and reliability of their cars—demonstration much needed in the earlier years of the industry. Necessity for convincing the public on these points having been served by such tests, their place has been taken by tours in which owners of cars may take part merely for pleasure and friendly rivalry. The Western tour is purely a pleasure affair, and the Glidden tour, although in the nature of a competition, lacks the irksome rules that made the endurance runs more onerous than pleasant. The change marks the progress in American automobiling; having proved the reliability of our cars, we are now taking the next step of showing what a factor they may be in promoting intercourse between different sections of the country and sociability among owners and enjoyment of the natural beauties of our magnificent scenery.

The good results that may flow from such events are manifold. They make for good fellowship among owners and among manufacturers and dealers, for the continued improvement and refinement of cars, and for increased interest in the problem of highway improvement.

✱

THE SORT of newspaper enterprise that leads to the publication of alleged information regarding a course to be selected for so important an event as the Vanderbilt Cup race before the roads to be used have even been chosen by the race commission, and while the consent of the county authorities for their use for such purpose has yet to be secured, is, to say the least, discourteous to the men upon whom largely depends the success of the event. Opposition to the closing of the public roads for the purpose of holding an automobile race that is even of so much value to the future of the automobile industry of America as an international contest, has not yet been allayed among the agitators of Long Island, and premature publication of maps, photographs, and descriptions of roads that the race commission may be considering for the purpose has no other effect than placing additional obstacles in the way of the contest. As a matter of fact, no course has been decided upon as yet, and cannot be until the county commissioners grant permission for the use of the roads. The real intention of conciliation and friendliness which actuates the promoters of the race is likely to be misconstrued by the residents of Long Lsland when they sec published accounts of the route. Such premature publicity can have no other effect than to make the requests of the committee for the use of the roads appear perfunctory and wholly lacking in the spirit of co-operation.

The "Times" Still Unconverted.

Declares Nothing of Recent Occurrence Has Changed Its Views Calls The Automobile "Not too Important Little Paper."

IN our issue of June 15 we published an account of the arrest of the chauffeur of Adolph Ochs, publisher of the New York *Times*, for alleged violation of the speed law in Yonkers, New York, and of the subsequent dismissal of the case in Special Sessions. In the same issue we discussed the matter editorially, referring to an editorial on the case which appeared in the *Times*, and which we reproduced in full. Several days later the *Times* reopened the subject in an editorial paragraph, comment on which appears in the editorial page of this issue. The *Times* editorial follows:

"Few things are more irritating than to be credited with a change of opinion when one's opinion is exactly what it has always been. It is even worse than to be charged with such a change in the same conditions, for the crediting is an intimation, all too plain, that one has long been wrong, and for that the warmest of admissions that one is right at last is but poor, pale consolation when one is quite sure that one has been right all the time. Which introduces, after a fashion, the fact that a not too important little paper published in this city, The Automobile, affects a pleased surprise over the appearance in this column recently of what it calls "a plea for the injection of a little common sense into the administration of the automobile speed laws of New York." And it adds: "Hitherto The Times has been famous (without the prefix 'in') for its fanatical—it would be unfair to write 'ignorant' about that thirty-story temple of learning—opposition to anything and everything pertaining to automobiles." Now, the *Times* certainly has been, as it certainly is, opposed with much vehemence to not a few things that can be described—by stretching the language a bit—as "pertaining to automobiles." It has been and is opposed, for instance, to the use of the public highways as race courses, either for the informal competitions of individuals met by accident or for elaborate contests between a score or more of machines highly specialized for speed. It has been and is the relentless enemy of every automobilist who willfully violates the laws of the towns through which he rides, who habitually disregards the rights and privileges of people on foot or in horsedrawn carriages. It has no new affection for the speed maniac or the reckless blackguard, and it purposes to preach the adequate punishment of both whenever opportunity offers. But this is far from being "opposition to everything pertaining to automobiles." From the first appearance of those vehicles, the *Times* has fully and cordially recognized all their great possibilities for both business and pleasure, and its hostility has been, not to automobiles or automobiling, but to the abuses of them both—not to the manufacturers or the owners of automobiles, but to the too frequent misapplication of ingenuity by the first and the too frequent lawlessness and discourtesy of the second. Instead of seeking motives for a non-existent revolution in our policy, The Automobile would have been much better employed in performing the not difficult task of learning what our policy is and has been—and in adopting that policy as its own. It has harmed, not helped, the automobilist by defending him through thick and thin, while we are sure that we, by drawing and maintaining a firm line between wise and decent automobilists and those who are neither, have helped, not harmed, the whole fraternity. However that may be, nothing of recent occurrence has changed our views or seems likely to do so."

TWO DAYS' RACING AT BRUNOTS ISLAND.

Enthusiastic Crowds Witness Most Successful Meet—Chevrolet Again Wins Laurels—Close Finishes Mark Second Day's Events—Transportation Facilities Inadequate.

Special Correspondence.

PITTSBURG, July 1.—Barring a series of accidents, which seemed unaccountable, the National Automobile Meet at Brunots Island, June 28 and 29, was a pronounced success. The weather on both days was ideal. Fully 6,000 persons were at the track, and their tremendous enthusiasm gave substantial encouragement to the sport of automobiling.

On the first day the crowd had some difficulty in getting across the Ohio River to the Island, as there was only one ferry and a small naptha launch in operation. The Automobile Club of Pittsburg, however, came to the rescue, and provided several pleasure boats for the second day.

Earl Kiser carried off the honors the first day by putting his car, Winton *Bullet* No. 2, over the line ahead of Major C. J. S. Miller's 90-horsepower Fiat, whose driver, Louis Chevrolet, was hidden from view much of the time in a cloud of dust. Kiser made the five miles in 4:44 2-5, winning the $2,000 trophy. This race was preceded by two events, in which local drivers participated.

Much delay followed the preliminary race, and it was evident at once that something was wrong between Kiser, Chevrolet and Oldfield. Time after time the judges rang the bell for a start, but Chevrolet was the only one who brought his car to the stand. He seemed confident of winning and apparently was willing to grant anything to get a race with his rivals. The judges finally announced that a dispute was on between the champions, two of whom, owing to the dangerous condition of the track because of excessive dust, were unwilling to make a regular start from the wire. It was finally agreed that Kiser and Chevrolet should make a flying start from the 1-2-mile post, the race to begin at the home wire, and the winner to race Oldfield and his *Green Dragon* in the next event.

Kiser took the pole at the start and the *Bullet* jumped into the lead and was fifteen lengths ahead at the end of the first mile. The crowd looked in vain for Chevrolet to overtake him. Instead, Kiser came under the wire 1-4 of a mile in the lead.

After the fifth event, Kiser and Oldfield raced for the National Championship. Kiser took the pole again at the start, but Oldfield passed him rounding the first turn. At the 3-8 pole Kiser's car broke down, putting him out of the race. Oldfield completed the five miles in 4:50 2-5.

Major Miller announced that he would protest the race on the grounds that the *Green Dragon* had no reverse gear and was not eligible according to the rules amended June 1, 1905. The racing between the champions gave Oldfield four points, Kiser two points, and Chevrolet two points.

Kiser's car could not be fixed up for the free-for-all, and Oldfield and Chevrolet started the race with the Frenchman at the pole. Barney took the pole at the quarter, but lost it again at the end of the fifth mile. The *Green Dragon* lost its right hind-wheel tire on the seventh mile, but Oldfield finished the race amid tremendous applause from the grandstand, with Chevrolet three-quarters of a mile in the lead.

The Cupid's race furnished the fun for the afternoon. W. C. Temple's car, driven by his chauffeur, Lester Wilson, won the race. Society was out in force, and cheered loudly the frantic attempts of the young ladies to get a place in the racing cars.

Fast racing and ideal weather marked the second day of the meet. The Fiat and Louis Chevrolet had everything their own way, and Barney Oldfield, with his *Green Dragon*, was a poor second in the ten-mile championship, which the Fiat won by nearly a lap, in 9:53 2-5. Chevrolet gave nothing to Oldfield at the turns, and in the stretches pulled away from him.

In the five-mile free-for-all, Chevrolet and Oldfield came together again, and Chevrolet once more covered himself with glory. Barney took the lead, but in the third mile his rear right-hand wheel suddenly collapsed. Earl Kiser and Mrs. Oldfield tore around the track to the scene of the accident, but found Barney was not injured. The car was taken to the repair tent, but could not be repaired in time for Oldfield to enter the trial for record event.

The crowd on Thursday numbered about 5,000 persons. The races were held promptly, and were finished by five o'clock. The day's sport was much more interesting for the finishes were closer than on the previous day.

In the stock car events the Franklin 12-horsepower and the Pope-Toledo 30-horsepower made splendid showings. Charles Soules arrived too late the first day to take part in the earlier events. Later he entered the handicap, five miles from the scratch, and beat all other cars except the Franklin.

The following are the summaries:

FRIDAY.

Five miles, for gasoline cars of 22-h.p. and less.—Winchester, Franklin, 1st; C. K. Hill, Franklin, 2nd; W. G. Larimer, Reo, 3rd. Time, 8:37 2-5.

Five miles for gasoline cars of 28-h.p. and less.—Collins, Peerless, 1st; Hodge, Pierce, 2nd; Winchester, Franklin, 3rd. Time, 6:44 3-5.

Five-mile Championship. — First heat: Earl Kiser, *Bullet*, 1st; Chevrolet, Fiat, 2nd. Time, 4:44 2-5.

Five-mile Championship—Final: Chevrolet, Fiat, 1st; Oldfield, *Green Dragon*, 2nd. Time, 4:50 2-5.

Ten miles, for stock gasoline stock cars of 36-h.p. and less.—Collins, Peerless, 1st; Hart, Pierce, 2nd; Haus, Pierce, 3rd. Time, 12:32 2-5.

Five miles, Cupid's race.—Wilson, Pierce, 1st; Haus, Pierce, 2nd; Collins, Peerless, 3rd. Time, 7:38 1-5.

Five-mile handicap — Hill, Franklin (1:15), 1st; G. Soules, Pope-Toledo (scratch), 2nd; Hodge, Pierce (35 seconds), 3rd. Time, 7:18 3-5.

Ten miles, free-for-all.—Chevrolet, Fiat, 1st; Oldfield, *Green Dragon*, 2nd. Time, 10:00.

SATURDAY.

Two miles, for gasoline stock cars of 22-h.p. and less.—W. F. Winchester, Franklin, 12-h.p., 1st; Gardner, 12-h.p. Franklin, 2nd; W. G. Larimer, 16-h.p. Reo, 3rd. Time, 3:22.

Ten miles, for gasoline stock cars of 28-h.p. and less.—D. P. Collins, 24-h.p. Peerless, 1st; F. Hodge, 24-h.p. Pierce, 2nd; W. F. Winchester, 12-h.p. Franklin, 3rd. Time, 13:43 3-5.

Ten miles, A. A. A. National Championship.—Chevrolet, 90-h.p. Fiat, 1st; Oldfield, *Green Dragon*, 2nd. Time, 9:53 2-5.

Five miles, for gasoline stock cars of 36-h.p. and less.—Charles Soules, 30-h.p. Pope-Toledo, 1st; Haus, 28-32-h.p. Pierce, 2nd; Hodge, 24-h.p. Pierce, 3rd. Time, 6:34 3-5.

Five-mile handicap.—Charles Soules, 30-h.p. Pope-Toledo (scratch), 1st; W. F. Winchester, 12-h.p. Franklin (35 seconds), 2nd; Collins, 24-h.p. Peerless (20 seconds), 3rd. Time, 6:35 3-5.

Three-mile handicap.—W. F. Winchester, 12-h.p. Franklin, 1st; Hodge, 24-h.p. Pierce (25 seconds), 2nd; C. Soules, 30-h.p. Pope-Toledo (scratch), 3rd. Time, 3:51 2-5.

Five miles, free-for-all.—Won by Chevrolet, 90-h.p. Fiat. Time, 5:00 1-5. Oldfield's *Green Dragon* met with accident and did not finish.

Three-mile exhibition. — Soules, 30-h.p. Pope-Toledo, stripped. Time, 3:26.

ANOTHER COAST RECORD.

Torley Establishes Frisco-Los Angeles Record for 4-Passenger Cars.

Special Correspondence.

SAN FRANCISCO, June 25.—Harry Torley, of Oakland, driving a two-cylinder, eighteen-horse power Rambler car, accompanied by James McIntire, Will Fageol and Harry Hunt, of San Francisco, made the run between the *Chronicle* office in San Francisco and the *Times* office in Los Angeles Friday and Saturday of last week in thirty-nine hours and five minutes, establishing a record for four-passenger cars.

But for the fact that the party was lost for three hours during the second night out, it would have beaten the time made by Whitman and Hamlin a week earlier in a Franklin. Whitman's time was thirty-seven hours and fifty-three minutes, and his run was made from Los Angeles north. It is claimed that the run south, which was made for the first time as a continuous performance by the Torley party, is an hour and a half longer than the run north, owing to the grades being longer when the trip is made in this direction.

The trip was arranged by Fred A. Jacobs, of the Rambler agency in this city, and was begun by two cars, Mr. Jacobs driving the second car, accompanied by Frank Fageol, of San Francisco, Dwight Lefferto, of New York, and Robert Shingle, of Honolulu. Jacobs was an hour ahead of Torley at Santa Marguerita, when a broken roller ball compelled him to retire. He states that he believes the run can be made in thirty hours, and will make another trial in a couple of weeks.

ST. LAWRENCE SEASON OPENING.

Special Correspondence.

FRONTENAC, N. Y., July 3.—Interest in power boating will soon turn toward the Thousand Islands. The splendid race courses at Frontenac and Chippewa Bay are adjudged to be among the finest in the world, and the events scheduled for this month and next will reveal the advantages of St. Lawrence waters to many visiting autoboat enthusiasts.

The launch owners who leave New York City on the cruise to the St. Lawrence via Albany and the Erie Canal on August 17 will be entertained at the Frontenac and Thousand Island Yacht Clubs upon arrival. The A. P. B. A. races for the gold Challenge Cup are scheduled for August 24 to 26 at Chippewa Bay, and several local races will also be held at Alexandria Bay and Frontenac as a trying-out for resident power boats of the racing class.

Alfred Costello, the leading spirit of the Frontenac yachting interests, has arrived here from New York, and is now arranging for a race on July 20, 21 and 22. A number of valuable trophy cups will be awarded as prizes.

The Frontenac club, organized last season, is the second club of this section to affiliate with the American Power Boat Association, the other being the Chippewa Bay Yacht Club. The former club expects to build permanent quarters this fall.

SUCCESSFUL CLIMB IN MINNEAPOLIS.

After One Postponement Ideal Weather Favors Contest of Local Club Over Course on Riverside Hill—Large Entry List—Good Times Made.

Special Correspondence.

MINNEAPOLIS, June 26.—The hill-climbing contest held by the Minneapolis Automobile Club this afternoon on the new Riverside hill, was witnessed by several hundred people, and excellent times were made. The event was postponed from Saturday to Monday, because of rain, and weather conditions to-day were ideal.

The best time over the 2,000-foot course was made by H. P. Watson's Fiat—34 seconds. The next best time was made by a Thomas Flyer, driven by Stromquist, in :37 1-4.

Stromquist in the 50-horsepower Thomas and Caulin's 40-horsepower Royal Tourist tied in Class A, each covering the course in 40 1-2 seconds. Later the tie was run off and the Royal won in :39 4-5.

The Stevens-Duryea, driven by H. E. Pence, won in class B in 44 seconds, two Olds machines securing second and third places.

The amateur events were run in much slower times than were the professional. Walter Benz, Ford, won the first event in 1:18 1-4; L. H. Fawkes' Rambler won the second in :52; J. J. Heinrich's Winton the third in :59; Asa Paine's Winton the fourth in :42 1-4, and Alf Pillsbury's Peerless, driven by E. H. Moulton, won the last event in :41 3-4.

The following are the summaries:

SUMMARIES.

PROFESSIONAL EVENTS.

Class A.

	Car.	Driver.	H. P.	Time.
1	Royal Tourist	Anderson	40	:39 4-5
2	Thomas	Stromquist	50	:40 1-2
3	Buick	Reynolds	20	:53 1-4

Class B.

1	Stevens-Duryea	H. E. Pence	20	:44
2	Olds	F.G.Winston, Jr.	20	:48 3-4
3	Olds	Hilden	20	:51 1-4
4	Reo	J. J. Barclay	16	:54 1-4
5	Franklin	Bergstrom	12	:54 1-4
6	Rambler	Ed. Clark	16	:49

(Not allowed because not officially entered.)

Class E.

1	Fiat	H. P. Watson	60	:34
2	Thomas	Stromquist	50	:37 1-4
3	Peerless	Savage	35	:39
4	Royal Tourist	Anderson	40	:40 1-2
5	Stearns	Nelson	35	:43

Class E. Continued.

	Car.	Driver.	H.P.	Time.
6	Peerless	Savage	35	:43
7	Olds	F.W. Winston, Jr.	20	:50 3-4

AMATEUR EVENTS.

Class Two.

1	Ford	Walter Benz	10	1:18 1-4
2	Cadillac	Reynolds	8	1:28 3-4
3	Holsman	L. F. Fawkes	10	Did not fin.

Class Three.

1	Rambler	Ed. Clark	16	:52
2	Franklin	Bergstrom	12	:57 1-2
3	Marion	Simpson	16	:57 1-2
4	Rambler	Wellington	18	:57 3-4
5	Buick	Reynolds	20	1:01
6	Queen	Swanburg	16	1:01 1-4
7	Reo	J. J. Barclay	16	1:03
8	Autocar	Reynolds	10	1:15 1-2
9	Franklin	E. H. Moulton	12	1:18 3-4
10	Rambler	Dave Thomas	16	1:21

Class Four.

1	Winton	A. C. Bennett	30	:59

Class Five.

1	Winton	A. C. Bennett	40	:42 1-4
2	Pope-Toledo	H. E. Pence	30	:44 1-4
3	Thomas	Stromquist	40	:46 3-4
4	Frayer-Miller	W. C. Thornhill	24	:55 3-4

Class Six.

1	Peerless	E.H.Moulton, Jr.	35	:41 3-4
2	Stearns	Nelson	35	:43
3	Peerless	E.H. Moulton, Jr.	35	:43 1-4

FIGHTING CITY ORDINANCES.

Injunction Sought Preventing Collection of Vehicle and Operators' License Tax.

Special Correspondence.

KANSAS CITY, June 30.—The Automobile Club of Kansas City has taken its first step in the legal fight against unjust city ordinances relating to automobiles. Application for an injunction directed against the license inspector, the chief of police and the city attorney has been made to prevent the collection of the vehicle tax and the operators' license tax. The hearing in the case has been set for July 8, and pending the hearing an agreement has been reached that there will be no more arrests until a decision is made. The city probably will take a change of venue.

The club contends that the vehicle tax of $5 flat on all types of cars is unjust, as the tax on horse-drawn vehicles ranges from $1.50 to $6. The operators' tax is attacked on the ground that it is double taxation. Another objection is that an operator may qualify as a skilled operator by driving a steam car and have a license issued to him to the effect that he is qualified to operate any kind of car. The suit names specifically E. P. Moriarity, of the Automobile Club, and all other members of the club join.

ED. CLARK IN 16-H. P. RAMBLER WINNING CLASS THREE IN MINNEAPOLIS CLIMB.

A large increase in club membership has been noticed since the fight against carrying two large number plates was begun.

TO TEST CALIFORNIA LAW.

Claimed Unconstitutional by County Attorney and Test Case Will Result.

Special Correspondence.

SAN FRANCISCO, June 25.—The legality of the state automobile law is likely to be tested in the courts as a result of a warning given out by the District Attorney of Santa Clara county to automobile drivers to keep off the Mt. Hamilton and Santa Cruz mountain roads in accordance with the county ordinance. The action of the District Attorney is undoubtedly influenced by certain political interests in the county which are interested financially in the stage line up Mt. Hamilton to Lick observatory, which had a monopoly of the traffic until the state law gave automobiles equal rights on all public highways with other vehicles.

Under the provisions of this law all conflicting county ordinances are repealed, and in view of the fact that automobiles make the run to Lick Observatory in two hours with ease, against six to seven hours for the stages, the stage company has been afraid its business would slip away from it. When the first car made the run up Mt. Hamilton after the passage of the new law, an effort was made to discourage further travel by unfounded stories of accidents and mobs chasing the automobilists. Two weeks ago the Automobile Club of California made a run to Santa Cruz over the Santa Clara-Santa Cruz mountain road, and the ease with which the run was made, and the freedom from accident, was a source of much chagrin to those who had predicted that the opening of these roads would be followed by a long list of fatalities.

Since the new law went into effect there has not been an accident on any of the mountain roads that had previously been barred to automobilists and the automobile interests are indignant at the present attitude of the Santa Clara District Attorney. That official, who is evidently backed by the supervisors, claims that the law is not constitutional as it comes under the head of class legislation, and also that there were fatal defects in the method of passing it. He claims that the county ordinances are still in effect and states that they will be enforced.

The Automobile Club of California, which was instrumental in having the state law passed, will undoubtedly make a test case in support of their measure.

WISCONSIN REGISTRATION BEGINS.

Special Correspondence.

MILWAUKEE, July 1.—The Secretary of State has begun sending out certificates of registration of automobiles. The new state law, which goes into effect next Saturday, requires that all automobiles shall be registered at the office of the Secretary of State. The Secretary has already received more than 600 requests for registration blanks.

Considerable trouble has been experienced in getting suitable numeral plates for the machines, but the design finally selected is expected to meet with general satisfaction. It consists of a metal plate, six by eleven inches in size, with aluminum letters five inches long. The numerals are followed by a large "W," showing that the machine is registered in Wisconsin.

The registration certificates will be issued in duplicate, so that the owner of a machine will always have an extra one in case of

accident to the original certificate. The first certificate will be issued to Judge A. C. Zimmerman, of Madison, a former law partner of Governor La Follette and an ardent automobilist.

ALEXANDER TURNPIKE SUIT SETTLED

Special Correspondence.

CINCINNATI, June 30.—A settlement has been reached in the suit of Oscar Barrett against the Campbell County Turnpike Company which meets the approval of automobilists generally.

The original filing of the suit was directly due to the action of the turnpike company in forcing Mr. Barrett to pay a toll of several dollars for driving over the Alexander Pike in his automobile. The amount charged was greatly in excess of the regular fee charged other vehicles using the road, and was paid under protest, Mr. Barrett immediately threafter bringing suit to restrain the company from making further exhorbitant charges for the use of its pike by motor vehicles.

The conditions of settlement which were submitted by the turnpike company, and were accepted by the plaintiff, are as follows:

The Pike Company will issue a mileage book for automobiles. This book will be signed by the purchaser, shall describe his machine, is not transferable, and will be taken up by the company at its face value upon demand and presentation.

The rates of fare for all automobiles, or other motor vehicles, used as pleasure conveyances, shall be the same as other pleasure conveyances, viz.: Twenty cents for each five miles, except that a motor vehicle having seats for only two persons shall pay one-half of this fare.

The Alexander Turnpike crosses the river and leads down through Kentucky, and is one of the most popular drives in this section. The Automobile Club of Cincinnati actively supported Mr. Barrett in his fight for a uniform scale of rates for all vehicles using this road, and its members are well pleased with the settlement reached.

TOWNSHIP REGULATIONS ANNOYING.

Special Correspondence.

WORCESTER, MASS., June 29.—Members of the Automobile Club are very much surprised because under the new state law which became effective on June 3, selectmen of the nearby towns have made in many instances prohibitive speed laws, and in but one instance has the local club entered a protest as provided under the new law.

The legal advisers of the club appear to have fallen into a deep sleep, and the grumblings of the members at their laxity were not enough to awaken them until the time limit in which protests might be filed with the State Highway Commission had expired.

Lancaster, a favorite half-day trip with automobilists of this section, has fixed the rate at eight miles an hour. Leicester allows twelve miles, and ten appears to be the favorite with the boards of selectmen at the various towns.

The club, through Attorney David H. Gay, has protested the ten-mile limit set by the town of Holden.

An agitation against automobilists has been started in Clinton, a town thirteen miles north of this city, and the autophobe is at present in full control of the situaton. Summonses are being issued by the wholesale, and prominent automobilists of Boston and Worcester have been haled into court.

A fully inflated tire has much less tendency to creep than one which is soft.

NEWS AND TRADE MISCELLANY.

An air-cooled gasoline motor, of the type in which the crankshaft remains stationary while the cylinders rotate around it, has been patented by the Brown-Winstanley Mfg. Co., of Los Angeles, Cal.

After considering the evidence submitted in the matter of the protest of L. H. Elmer against the Knox cars competing in the Hartford race meet June 16-17, Referee F. G. Webb has disallowed the protest and awarded to the Knox first and second places in the race for stock cars listing at $1,000 to $2,000.

The J. W. Schafer Electric Co., 18 San Ignacio, Havana, Cuba, has secured the agency for the Pope-Waverley electrics and Winton automobiles.

The secretary of the Automobile Club of America has announced that the clubhouse will close each evening at 7 o'clock during July and August. The Morris Park Motor Racing Club has extended to the members of the A. C. A. the privileges of its clubhouse at Morris Park on all days during the season, except on occasions of race meets.

About July 15, C. M. Ricketts, of the Canada Cycle and Motor Co., of Toronto, will attempt a Canadian transcontinental trip, going by way of North Bay, through Northern Ontario, thence to Winnipeg and through to the Pacific. Mr. Ricketts expects to complete the trip in about six weeks. He will travel in the *Russell*, a new Canadian-made car, and will be accompanied by a mechanician.

Harry J. Mortensen has opened a repair and storage station at 2006 Encinal avenue, Alameda, Cal.

W. J. Poole, who for a number of years was connected with the bicycle establishment of Leavitt and Bill, Oakland, Cal., has opened a well-equipped garage at 370 Twelfth street, Oakland, and in addition has secured the agency for the Wayne cars.

California Automobile Co. is now occupying temporary quarters at 1375 Broadway, Oakland, Cal., pending the completion of its new and commodious garage at Eighteenth street and Telegraph avenue. The company has the agency for the Cadillac and Buick machines.

G. A. Wahlgreen, promoter of the Pike's Peak Hill Climb, states that $5,000 has been subscribed toward the expense of the contest, and twenty-five entries have already been received.

Francis A. Price has been appointed Highway Commissioner for New Castle County, Del., succeeding C. J. Horrigan, term expired. Mr. Price is a practical civil engineer, and a pioneer of the good roads movement in Delaware.

Walter N. Beecher, formerly with the Studebaker Brothers Mfg. Co., has been elected secretary and manager of the Limousine & Carriage Mfg. Co., 323 East Twenty-fifth street, Chicago.

The Cuban Electric Vehicle Co. has been organized at Havana, Cuba, with a capital of $50,000. Rafael de Arozoza is president; Carlos Annoldson, secretary, and Oscar Annoldson, treasurer, of the new concern, and offices have been opened at 31 Mercadares street.

The Locomobile agency for Cuba has been placed with the Havana Garage Co.

The King of Spain is a recent purchaser, through the Paris agency of the Electric Vehicle Company, of a Columbia electric surrey. The Spanish monarch's garage contains several automobiles, but this is said to be his first electric.

A movement is being made to organize an auto boat club among the owners of power boats on Lake Quinsigamond, near Worcester, Mass. There are now about fifteen boats in commission on the lake.

Plans are now being made for the construction of a two-mile automobile race track at Atlantic City. Charles R. Myers, proprietor of the Hotel Rudolf, and William H. Carroll have acquired and are reclaiming sufficient land not only for the track, but to provide lots for an attractive suburb.

The Detroit United Railway Company has added a Packard truck to its repair service.

Under a resolution recently adopted by the city council of Montreal, Canada, automobiles are prohibited from using the driveways in Mount Royal Park.

The Maple Leaf Automobile & Electric Mfg. C. has been incorporated at London, Ont., with a capital of $50,000, and will manufacture electrical appliances, dynamos and engines.

The addition to the plant of the Moore-Edenfield Electric & Mfg. Co., Augusta, Ga., has just been completed, and the building is being equipped with modern apparatus for automobile repair work. The addition is of brick, and is 30 by 85 feet.

RECENT INCORPORATIONS.

Auto Cover & Top Mfg. Co., New York; capital, $15,000. Directors—W. F. Fickling, P. H. Ray, New York; J. D. Lee, New Rochelle.

Automobile Improvement Co., Sandusky, O.; capital, $15,000. Incorporators—J. S. Bennett, F. S. Felch, G. W. Putnam, Webb Sadler and C. H. Johannsen.

Interborough Rubber & Vehicle Supply Co., New York; capital, $10,000. Directors—Frank Bourne, Joseph Fackora and La Mott Hartshorn, all of New York.

Park Auto Co., Wilmington, Del.; capital, $20,000; to deal in motor vehicles.

Fitchburg Auto-Transit Co., Fitchburg, Mass.; capital, $5,000; automobile passenger service. Officers—Horace F. Grove, president, and E. C. Ford, treasurer, both of Fitchburg.

Aster Company, New York; capital, $250,000; automobiles. Directors—A. J. Myers, O. B. Kull and Alfred Epstein, all of New York.

Alaska Automobile Transportation Co., Olympia, Wash.; capital, $500,000; to operate automobile service from Nome, on Behring Sea, to Solomon City and other points.

Princeton Garage Co., Princeton, N. J.; capital, $2,100; repair and storage. Incorporators—Thornton Conover, Edward C. Ropp, Louis J. Campbell and Charles A. Wyman, all of Princeton.

Tuxedo Garage Co., New York; capital, $40,000; to deal in, store and rent automobiles. Incorporators—Charles A. Gerlach, Sampson S. Lee and Hugo M. Hergert, all of New York City.

Auto Rapid Transit Co., Buffalo, N. Y.; capital, $5,000; to manufacture automobiles, boats and vehicles. Incorporators—John M. and Catherine L. Campbell and Michael F. Dirnberger, Jr., all of Buffalo.

Carlson & Russ, Richmond Borough, New York City; capital, $5,000; to manufacture engines, motors, car trucks and vehicles. Incorporators—Charles O. Carlson and John D. Russ, Staten Island, and Carl A. Erickson, Brooklyn.

Cuban Motor Tally-Ho Co., Ridgefield, N. Y.; capital, $100,000; to buy, sell, store and repair automobiles and boats, and conduct livery business. Incorporators—Charles E. Codd, Havana, Cuba; George H. Wright, New York, and John H. Taylor, Newark.

INFORMATION FOR BUYERS.

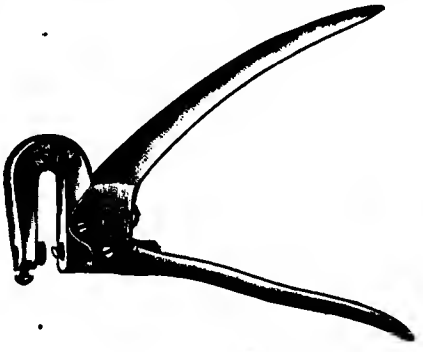
IGNITION COILS.—The Heinze Electric Co., of Lowell, Mass., is a firm that has been for five years engaged in the manufacture of electrical apparatus in which extremely high-tension currents have to be handled—such as spark coils for wireless telegraphy and x-ray work, capable of producing a spark fifty inches long—and is, therefore, well acquainted with the insulation problem and other questions connected with high-tension coil work. This

HEINZE SPARK COIL.

knowledge and experience has recently been brought to bear on the subject of spark coils for explosion motor ignition purposes, and these coils are now being manufactured by the Heinze Co., employing the same principles as in their large instruments. The secondary coils are insulated by layers of mica; the secondary sections are removable, so that in case of damage repairs can be effected without tearing the whole coil to pieces. The insulation of the primary coil consists of a tube of mica which, the makers state, cannot be punctured by the current. It is said that the coil cannot be burned out, as before the current could reach a strength sufficient for this the contacts would fuse and stick, preventing further action of the vibrator. The coil is guaranteed not to burn out, and is said by the makers to give an exceedingly thick, hot spark.

FRANKLIN TRANSCONTINENTAL RUN.—There are few journeys of any kind that are more remarkable than the trip made by a 10-horsepower air-cooled Franklin runabout from the Pacific to the Atlantic. The story of how the run was made in thirty-three days, is graphically told by L. L. Whitman, who, with C. S. Carris, took the little car across the mountains, over the American deserts and brought it safely to New York less than five weeks after leaving San Francisco. The story is printed in pamphlet form, issued by the H. H. Franklin Mfg. Co., of Syracuse, N. Y., and is entitled *From Coast to Coast in a Motor Car*; the journey is graphically though briefly described, bringing out forcibly the difficulties with which men and machine had to contend, and the thoroughbred manner in which they came out of each ordeal. Tales of breakdowns and repairs are conspicuously absent because, the "crew" states, they did not occur, the machine arriving in New York after its five thousand mile journey with little to indicate what it had been through.

HANDY HAND PUNCH.—A hand punch for perforating sheet metal, fiber, paper and so on, has been brought out by Samuel



NAFEW HAND PUNCH.

Nafew, of 453 Canal St., New York, and is stated by the manufacturer to be extremely well adapted to the work of automobile repair shops. The punch will make a 3-16-inch hole through 18 gauge sheet steel, and through soft brass or paper of any thickness up to the capacity of the throat opening. With the tool is sold a box of extra punches and dies of various sizes, so that a wide range of work may be done with a single tool by using the extra parts.

TRADE LITERATURE.

Jackson Automobile Co., Jackson, Mich. Booklet containing letters from those who have used Jackson automobiles, and who emphatically state that they like them.

Wolseley Tool & Motor Car Co., Ltd., adderly Park, Birmingham, England. An interesting booklet, *A Pleasure Jaunt*, describing an automobile tour in which two ladies cruised around in England in a small Wolseley car.

Smith & Mabley, Seventh avenue and Thirty-eighth street, New York. Catalogue of S. & M. Simplex automobiles, illustrated, showing several forms of bodies, separate parts of the cars, chassis and line drawings of the chassis.

Edison Mfg. Co., 31 Union Square, New York, and 304 Wabash Ave., Chicago. Catalogue of Edison primary batteries and fan-motor outfits; detailed description of construction and properties of the battery and instructions for using.

Allyne Brass Foundry Co., Cleveland, O., and Detroit, Mich. Booklet illustrating a number of complicated aluminum castings for crank cases, gear cases and other automobile parts. These, together with special bronze bearing metal castings, are specialties of this concern.

The Electric & Auto Co., Amesbury, Mass. Circulars describing the Orswell spark plug, which is said to be so constructed that no high-tension currents are carried through external wires, and there is no ground connection, both sparking points being in the plug and insulated from the engine.

McGiehan Odometer & Mfg. Co., 137 West Thirty-second St., New York. Cards illustrating and describing the McGiehan combined speed indicator, trip odometer and total odometer; the McGiehan trip and total odometer combination instrument; and the McGiehan plain total odometer. The speed-recording instrument in the first combination registers up to 60 miles an hour; the trip odometer reads to 999 9-10 miles, and the total odometer to 99,999 9-10 miles. All these instruments are attached to the dashboard of the car and are driven by gearing on the front wheel hub, a flexible shaft being the connecting medium.

INDEX TO ADVERTISERS

SPECIAL NOTICES

Advertisements inserted under this heading at 20 cents per line; about 7 words make a line. Remittance should accompany copy. Replies forwarded if postage is furnished.

AUTOMOBILE PLANT for sale, Eastern location, main line railroad; $100,000 required immediately; only well rated parties need apply. Quick Action, care of The Automobile. July 6

ANNUAL CLEARANCE SALE—One 1904 Winton, with canopy, brand new, $1,300. One 1904 Winton, like new, $900. One single cylinder Knox, four passengers, folding front seat, elegant condition, $450. One Haynes Apperson, 10 horsepower, with top, like new, $600. One 1905 Olds runabout, new, $550. One 1905 Olds light touring car, new, $650. Five 1903 Oldsmobiles, splendid condition, $250, $300 and $350. One Waverly electric, new batteries, good top, A1 shape, $350. One National electric, same condition, $300. One Ford, with tonneau, Fisk tires, 1903 model, just painted, fine shape, $500. One Cleveland, four passenger, good condition, $350. One Mobile steamer, almost new, $150. One 1902 Winton, new tires all around, just painted, elegant condition, $600. One 1904 Pope-Toledo, new tires all around, elegant condition, $2,000. One Fredonia, 12-horsepower, four passengers, elegant condition, $400. Fisher Automobile Co., 330 North Illinois street, Indianapolis, Ind. July 6

BARGAINS in second-hand automobiles. Mention the car you want. Kline Auto Co., Harrisburg, Pa. July 6

BARGAIN—Will exchange my 1904 White Touring Car for runabout. Olds preferred, and reasonable cash difference. Car in perfect condition, cape top, new tires, and run very little. Write full particulars. Address, C. A. Ludey, Marietta, Ohio. July 6

EIGHT HORSEPOWER gasoline truck; speed 16 miles; price $650. Suitable for light hauling. For sale by Frank E. Pearce, Orange Valley, N. J. July 6

FOR SALE—A 4 cylinder 1905 Model Demonstrating Car side entrance tonneau, full equipment. Low price. Had very little use. A great bargain. A. L. Dyke Auto Supply Co., Walton and Olive sts., St. Louis Mo. July 13

FOR SALE—Brand new 1905 Olds Touring Runabout, $595. A., care The Automobile. July 6-13

FOR SALE—Brand new 1904 White Steamer, with canopy top. C., care The Automobile. July 6-13

FOR SALE—Bran new Olds standard runabout, $500. Jacob Roth, 1019 State st., Erie, Pa. July 6

FOR SALE—1903 Winton 20 H. P., good condition, $500. New rear axle. D., care The Automobile. July 6-13

FOR QUICK SALE—$825.00 4-cylinder 20 H.P., Touring Car, 5 passengers. Address Bargain, care Auto. July 20

FOR SALE—$500.00 Knox 1903, Wheel steer, all in good order, tires good. F. N. Dounce, Elmira, N. Y. July 27

FOR SALE—Columbia electric surrey, mark XIX., perfect condition; bargain. P. O. Box 982, Buffalo, N. Y. July 13

FOR SALE—One Electric Delivery; two tops; cost $2,500; first offer of $500 takes it. Box 370, Harrisburg, Pa. July 6

FOR SALE—Oldsmobile light touring car; will carry five; in good condition. Price $600. Box 250, Harrisburg, Pa. July 6

FOR SALE—Pieree Stanhope, 8-horsepower motor, with top, sests four, perfect condition, $625. P. O. Box 982, Buffalo, N. Y. July 13

FOR SALE—Two new 1905 Yales; have not been run and are guaranteed; list $1,100 each; make offer. Address "K," c/o Automobile. July 6

FOR SALE—Canop Top, 1904 Yale; in good running order; cost $1,800; owner going abroad. Will sell cheap. Box 250, Harrisburg, Pa. July 6

THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, JULY 20, 1905—CHICAGO NO. 3

RESULTS OF THE INTERNATIONAL RACE.

From Our Own Special Correspondents.

CLERMONT-FERRAND, July 5.—France again holds the Gordon Bennett Cup. Such is the outcome of the sixth, the most exciting, the most keenly contested, and the most surprising of all the races yet held for this much valued trophy. Not only does France hold the Cup, but the previous year's winner is again the victor. This is a record, for never before has the race been won twice by the same man. Théry must be, indeed, "a proud man the day."

But the most important feature of the day is not the victory of France, but the remarkable performance of Italy and the collapse of the Mercedes competitors. When the race began it was thought by all —and feared by France—that the victor would be found amongst one of the six Mercedes cars present. And amongst this formidable set of men Jenatzy was generally regarded as the most likely winner. Less than an hour had to elapse to show the French that their fears were ill founded, and at the end of the first round they discovered that the struggle was to lay between them and Italy—one of the latest arrivals to automobilism.

Lancia's Fiat car made the most remarkable performance of the day. When the second round was finished he was leading on Théry by thirteen minutes, and during the third round this lead was still further increased. Whilst going very fast, and at a moment when victory seemed almost certain, a stone from the road struck the

LYTLE IN THE POPE-TOLEDO ROUNDING THE DANGEROUS CORNER NEAR ROCHEFORT ON THE AUVERGNE CIRCUIT.
First American Car to Finish in a Gordon Bennett Race.

lower part of the radiator, and started a leak that allowed the cooling water to quickly escape. As a consequence the motor became overheated and the car was brought to a standstill.

Thus by the merest chance the race was made secure for France. Lancia's misfortune did not, however, destroy Italy's position, for the two other cars were doing remarkably well and came in respectively second and third, with a lead of 7:57 1-5 and 5:43 4-5 on Caillois' Richard Brasier.

Although Italy has not won the Cup Fiat cars have obtained for it a victory no less important than that secured by Théry.

Twelve of the eighteen cars were officially classified. Of these France has three, occupying first, fourth and sixth positions, and securing for it the Montagu prize for team classification; Italy, too, taking second and third place; England three, placed respectively eighth, ninth and eleventh; Germany two, in the fifth and seventh position; Austria one, placed tenth on the list, and America one, taking twelfth position.

Lytle performed the pluckiest feat of the day. Disheartened on the first round by an accident to his lubricator which would have caused most men to abandon immediately, with dogged determination he stuck to his task, and finally brought his car in to the finish. Afterward when they weighed in both Lytle and his mechanician Knipper were covered with a thick coating of grease, which rendered them unrecognizable, while the machine was aflood with oil. For the last three rounds they had been blinded by gallons of oil splashing into their faces. Knipper's drab suit had changed to a shiny black under its coating of oil and dust.

America's failure is due to the sending over of machines of too low horsepower, the Pope-Toledo engines only developing half the power of the French and German machines, and not sufficiently studying the special nature of the course over which the race had to be run.

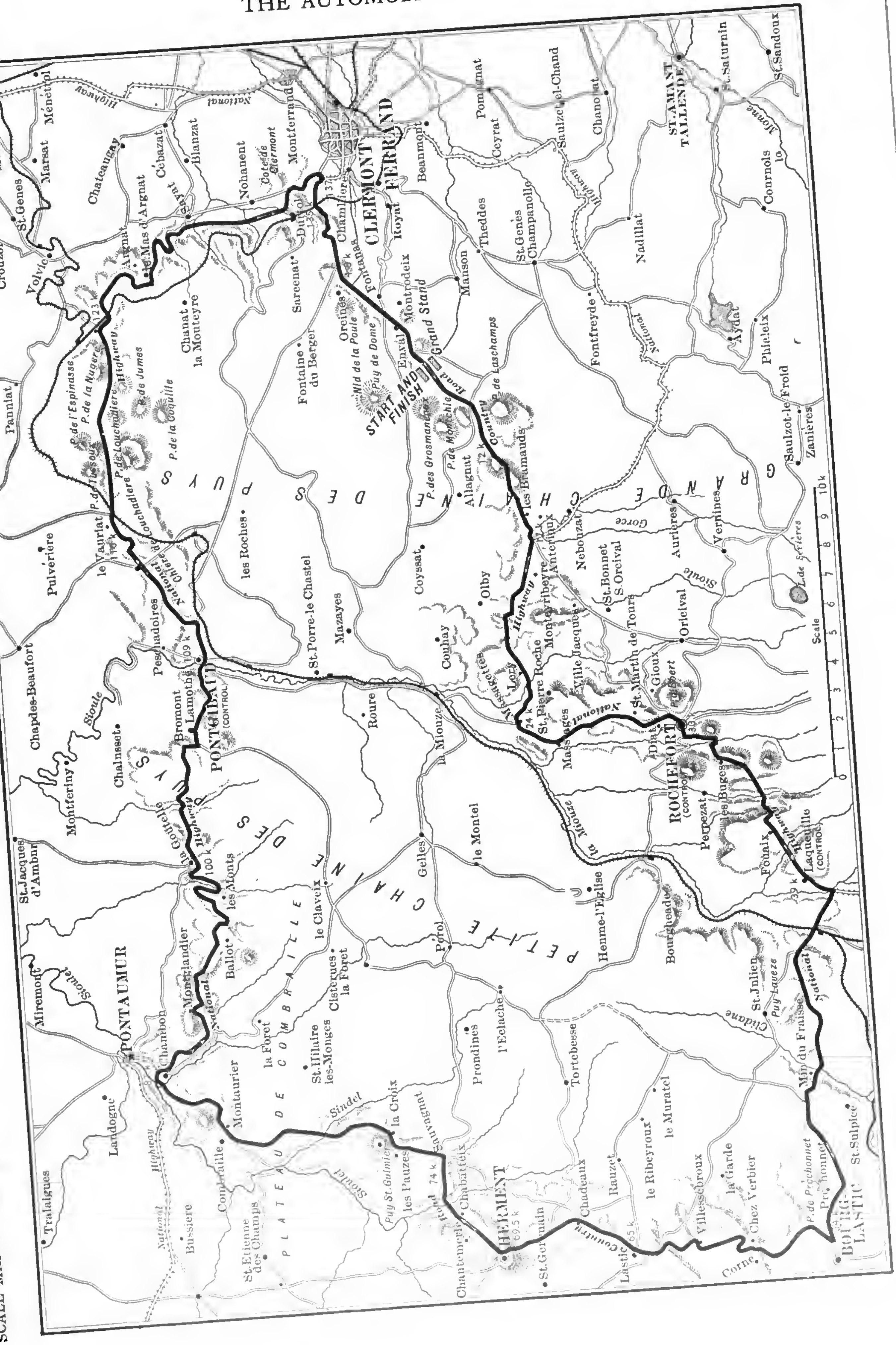
Nothing but praise is due to the French club for the admirable way in which the race was organized and carried out. The course was a most dangerous one, yet, thanks to the foresight of the officials and the careful way in which the road was guarded by troops, not a single accident or mishap of any kind marred the day.

The only defective portion of the arrangements was the inadequate accommodations for the representatives of the press. The small space allotted to their use was shared by the spectators, to the inconvenience of all.

The Cup is no sooner won than the question has to be faced as to what will be done with it. By its resolution of a few days ago France cannot take part in next year's race. It is probable that a meeting of delegates from all automobile clubs will meet in Paris very shortly, that the Cup will be given back to James Gordon Bennett and some decision reached as to future contests.

PARTICULARS OF ENTRANTS IN 1905 GORDON BENNETT RACE, THEIR OFFICIAL TIMES AND ORDER OF FINISHING.

No.	Country.	Car.	H. P.	Driver.	Mechanic.	Offic'l W'ght Kilos.	Tires.	Start Clock Time.	1st Round.	Gross Running Time. 2d Round.	3d Round.	4th Round.	Net Running Time.	Final P'sit'n. No.
1	France	Richard-Brasier	96	Théry	Muller	994	Michelin	6:00:00	1:41:07	1:49:04	1:48:42	1:49:56	7:02:42	3-5 1st 1
2	England	Napier	100	W. Clifford. Earp	A. C. Earp	996	Palmer	6:05:00	1:54:11	2:14:29	2:20:36	2:02:11	8:27:29	4-5 9th 2
3	Germany	Mercedes	125	Jenatzy	Menzel	1006	Continental	6:10:00	2:09:41	2:13:29	Broke springs, tire troubles; retired on third round.			3
4	Italy	F. I. A. T.	110	Lancia	Aissa	1007	Michelin	6:15:00	1:34:57	1:42:11	Accident to radiator; engine heated and gripped, near end of third round.			4
5	Austria	Mercedes	125	Braun	Laner	1001	Continental	6:20:00	1:55:04	1:56:04	2:28:45	2:13:02	8:33:5	3-5 10th 5
6	America	Pope-Toledo	50	Lytle	Knipper	992	Diamond	6:25:00	2:31:09	2:42:51	2:16:17	2:10:00	9:30:32	12th 6
7	France	Richard-Brasier	96	Caillois	Pouxe	1000	Michelin	6:30:00	2:00:50	1:46:15	1:54:24	1:47:17	7:27:6	2-5 4th 7
8	England	Wolseley	112	Rolls	Hands	998	Dunlop	6:35:00	2:03:49	2:05:01	2:18:35	2:07:17	8:26:42	1-5 8th 8
9	Germany	Mercedes	125	Baron De Caters	René Cozie	1005	Continental	6:40:00	2:06:09	2:00:59	2:13:49	2:13:14	8:11:11	1-5 7th 9
10	Italy	F. I. A. T.	110	Cagno	Boschis	1006	Michelin	6:45:00	1:54:54	1:50:39	1:53:49	1:51:10	7:21:22	3-5 3d 10
11	Austria	Mercedes	125	Hieronymus.	Freiler	1005	Continental	6:50:00	2:02:28	Tire and other troubles; abandoned on second round.				11
12	America	Pope-Toledo	50	Dingley	W. Tattersall	984	Diamond	6:55:00	Cracked cylinder water jacket and retired first round					12
13	France	De Dietrich	130	Duray	Franville	1003	Michelin	7:00:00	1:49:27	4:59:03	2:27:00	1:50:35	8:05:50	6th 13
14	England	Wolseley	112	Bianchi	Wilde	995	Dunlop	7:05:00	2:12:49	2:01:14	2:11:43	2:12:32	8:38:39	2-5 11th 14
15	Germany	Mercedes	125	Werner		1003	Continental	7:10:00	1:50:01	2:09:14	2:10:35	2:09:40	8:03:30	5th 15
16	Italy	F. I. A. T.	110	Nazzari	Fajnano	1005	Michelin	7:15:00	1:49:13	1:57:12	1:50:06	1:50:38	7:19:09	1-5 2d 16
17	Austria	Mercedes	125	Burton	Tons	1005	Continental	7:20:00	2:37:50	4:00:00	Abandoned, owing to tire troubles.			17
18	America	Locomobile	100	Tracy	Poole	1007	Diamond	7:25:00	2:42:55	3:13:10	Running on third round when race called off.			18



SCALE MAP OF THE AUVERGNE CIRCUIT IN FRANCE OVER WHICH THE GORDON BENNETT RACE WAS RUN JULY 5, REDRAWN BY OUR OWN CARTOGRAPHER FROM MILITARY AND OTHER ACCURATE MAPS.

Looking on at the Grand Stand.

From Our Own Special Correspondents.

PLATEAU DE LASCHAMPS, July 5.—At dawn this morning the plateau of Laschamps was a scene of life and busy movement, for all night long arrivals had been coming up to get their positions for the great race. Hundreds had slept out all night, wrapping themselves up in great coats and laying under the shelter of the grandstand. This had been a necessity for many, as there was no housing accommodation on this wild, wide stretching plateau. Although a vast view can be obtained one solitary little red brick dwelling, perched in a cleft on the hillside, and partly hidden by the fir trees, is visible to the eye. of the ravine a greyish band was distinctly visible serpentining down between the fir trees until it was lost in the valley. At each side of the road an unending stream of people was moving up in Indian files, so as to leave the narrow track free for the frequent passage of the cars.

All carry provisions, for they are mostly of the neighborhood and will not pay the high prices for food which they know will prevail on the course. Many of the men have slung over their shoulders a small barrel capable of holding two or three pints of liquor; flasks have not yet reached this old-fashioned country.

sition, and the road is more and more strictly guarded as the hour of the race approaches. A mile, or a mile and a half from the grandstand the road is fenced in and behind the fence is already drawn up a cordon of troops.

During the race there would have been no means of passing from one side of the road to the other had not Michelin, of tire fame, constructed a bridge over the road, which was profusely decorated with the firm's products. This bridge was found, at the eliminating trials, to be too far down the road to be of use to persons in the grandstand, and the club constructed a new one very near the starting point. Spectators were not allowed to remain on these bridges, and in order that they should not be tempted to break the law, the sides had

COMPETING CARS LINED UP ON THE COURSE BEFORE THE START OF THE 1905 GORDON BENNETT RACE.

The main road from Clermont to the starting line had been closed as early as 3 o'clock, and both foot passengers and vehicles were obliged to mount up by circuitous routes, joining the main road near the grandstands.

The scene was fascinating. The road winds up a ravine, the sides of which are covered with fir trees and a hardy vegetation, while here and there a patch of level has been wrested from the wild spirit which appears to brood over the district and has been carefully cultivated.

The still morning air was heavy with the dust of automobiles and gasolene vapors, and looking back from the upper portions

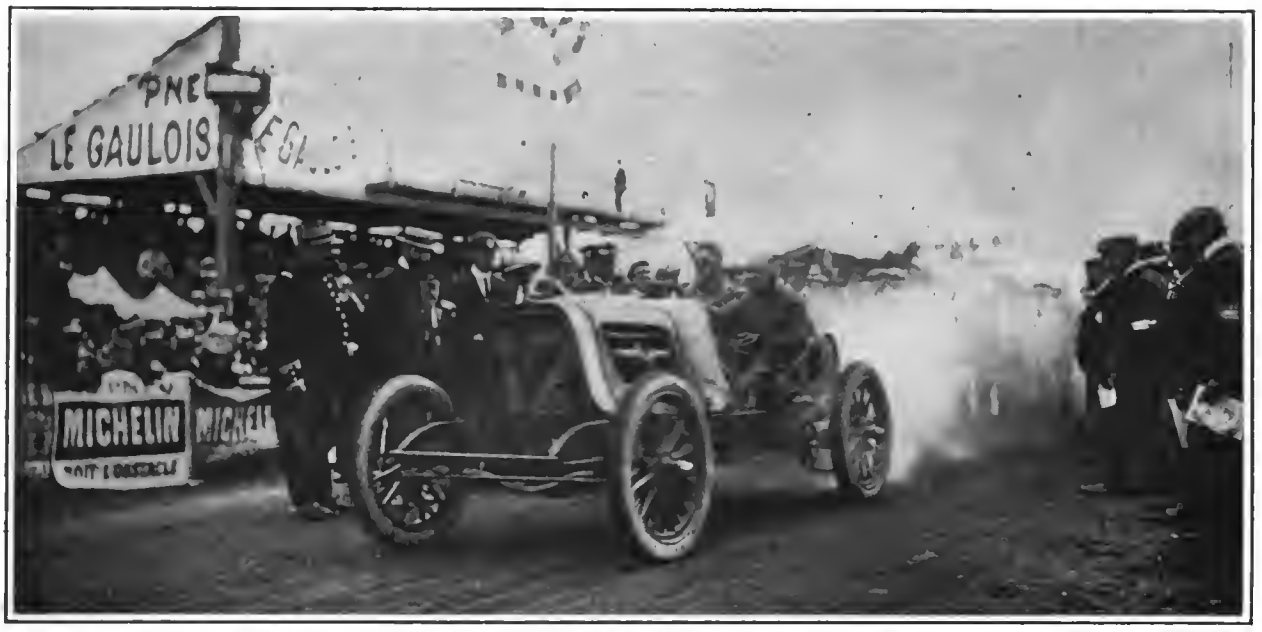
From time to time the file leaves the road where it makes a sharp bend on itself, cuts across country, and joins it a little further on to renew the Indian march. When the main road is struck, camp fies are seen at frequent intervals on the roadside, around them squating groups of people who have passed the night in the open air. In the shadow of rocks, or wrapped up in great coats on the edge of corn or hay fields, are to be seen solitary or groups of figures. In some cases, a whole family has thus camped out; in others a group of cyclists are united, whilst, again, a band of peasants has made a joint excursion.

Troops and gendarmes are already in po-

been raised sufficiently high to shut out the view. A trumpeter remained on each bridge and as soon as he heard a call from a comrade further down the road announcing that a car was in sight, repeated the signal. In this way the crowds at the grandstand were always warned of the coming of a car.

Spectators were early in position, for most people preferred to travel by the good road of the course rather than make a later start and use the narrow and more circuitous tracks alone available after 4 A. M.

The stands are on each side of the road; on the left the clubs' official stands, behind them being the club's restaurant, a very



AMERICA IN THE G. B. RACE—DINGLEY STARTING AWAY IN MR. C. T. MUIR'S POPE-TOLEDO.

palatial dining room in such an outlying district. Close by was the telegraph office, and further back the weighing-in shed and the spaces reserved for the racing cars, whilst still further back were roughly erected sheds for the workmen employed on the course. On the opposite side of the road were stands erected by the club and by individual firms, whilst behind them were one or two private restaurants.

Above the center stand on this side of the oad was the timing board, with a little platform running along the front of it, and on which were stationed two men. As soon as a car passed, its time was written on a piece of paper and carried across the road and handed over the barrier to a man in waiting at the other side. He caried it to the foot of the timing boad, attached it to a cord hanging down, when it was drawn up and the time painted in the space reserved. The operation was slow, and frequently two cars had gone by before the time of a preceding car had been painted on the board. On the bridge uniting the two sides of the road was painted in big letters *Honneur au Vainqueur* (Honor to the winner).

On the left hand side of the road was a little wooden shed painted green, which unpretentious as it looked, was, nevertheless, the most important building on the whole plateau, being the timer's office. Opposite a wooden post had been stuck in the ground.

At 5 o'clock all had been cleared off the road but persons wearing the official badges, and the eighteen cars which would compete in the sixth Gordon Bennett cup race were drawn up in single file on the right-hand side of the road, a little below the starting point.

At 5:30 o'clock all was expectation, for only thirty minutes remained before the first

FRANCE IN THE G. B. RACE—THERY AND HIS MECHANIC AT THE LINE IMMEDIATELY BEFORE THE START.

car would be sent away. On the road were all the representatives of the competing clubs, amongst them being Clarence Dinsmore, the American delegate, who took up a position against the starting post and remained there until all eighteen cars had disappeared from view, also the commissaires of the road, the sporting committee, the owners of the cars, each with a number of assistants, and a sprinkling of newspaper men.

Just after 5:30 o'clock a bucket of green paint was brought out, and under the direction of M. Tampier a broad line was painted across the road from the post to starter's box. Now all was in readiness, and a few minute's later, No. 1, Richard Brasier's machine, to be piloted by Théry, the holder of the cup, was pushed up to the line by willing hands. Those on the course gathered round the car, in order to have a look at the favorite, whilst the crowds in the stands, anxious to see the car get away, cried out, "Get further back." M. Brasier came up and spoke to Théry, who replied very briefly. Then, when he had got into his seat, his engine had been cranked, and his mechanician was settling down into his place beside him, M. Brasier patted his driver on the back of the head and wished him good luck.

Théry's engine throbbed gently as the timer began to count off, "Un, deux, trois—allez!" He went away very quietly amidst the cheers of the people, waved his hand a second later, and when a few yards further down the road gave another wave in response to the cheers which continued to follow him. In a few seconds he was round the slight bend, which momentarily hid him from view, then almost directly afterwards he reappeared on the brow of the hill and was watched with interest as he went round the gentle turn to the right into the wood.

Clifford Earp's six-cylinder Napier car was next pushed up to the line and instantly surrounded by a crowd of Britishers, who made the mother tongue dominate the French language for the time being. Four minutes after Théry had gone the order was given to crank the engine, the timer came round to the right-hand side of the car, and whilst the officials were examining all the pieces to see that they agreed with the marks on the official sheets, he explained in French to the English driver that he would say, "One, two, three, go!" Earp started rather more quickly than Théry.

As soon as Jenatzy's (No. 3) car came up, language changed again, nothing but guttural German being heard for some time. Keen interest was manifested in the German champion, for he was looked upon with fear by the French contingent as the man most likely to wrest from them the valued trophy. When the word "Allez!" was given he went over the line like a shot and disappeared from view much more quickly than the two previous competitors.

A hush fell upon the crowd as he went away, for the thought was in every mind that this daring and determined driver would reconquer the trophy he lost in Germany. The possibility of it was too terrible for the French to think of without a shudder. The Fiat car, to be driven by Lancia, had just got up to the starting line when the cry was raised by some person in the grandstand, "The dog." Someone made a dash for the animal, but missed it, and it continued to run down the road followed by frantic cries of "The dog, kill it; shoot it; stop it."

The poor animal, bewildered by the babel of voices on each side of him, continued to run down the hedged-in road looking from left to right for some means of escape. None was to be had, and Lancia's Fiat car was now thundering down the road towards it.

At the starting line car and dog were watched with breathless suspense. Lancia drove straight on, swerving neither to left or right. An involuntary "Oh!" went up as the left front wheel was seen to strike the animal, the rear wheel went over it, the body rolled over, feet in the air, and the car went on undamaged.

A sigh of satisfaction, mingled with a few expressions of "Poor dog," went up from the people, and they turned their attention to No. 5 car, an Austrian Mercedes piloted by Braun. He went away very quickly, and the Pope-Toledo car was pushed up to the line.

The whole American contingent gathered round Lyttle and wished him good luck on his journey. Lyttle made a very careful start, and went away rather slowly. He had only just got out of sight when the message came through to the undisguised satisfaction of the French section, that Jenatzy was stopped by the roadside.

The second Richard Brasier car, No. 7, driven by Caillois, came up and was sent away amidst loud cheers. No. 8 car was the English Wolseley, and its start was watched with interest, for Rolls is the best known of the English-speaking drivers in the race. The starter commenced to explain that he would use English words instead of French as the seconds passed, but Mr. Rolls replied to him in good French, telling him there was no necessity to do so, and continued conversing in French for a few seconds. On his dash he had stuck up a card on which was written the names of different points on the circuit with their distances apart in kilometers and miles.

Baron de Caters, on No. 9, German Mercedes, came up next, and was greeted by M. Brasier, who said to him: "Try to win, but don't come in first." The Baron made a very quick start, and his place was taken at the starting line by Cagno, on No. 10 Fiat, who went away with surprising skill.

Hieronymus was not so successful in getting away.

Dingley, on No. 12, Pope-Toledo, next came up and was surrounded immediately by all Americans who heartily wished him good luck. The timer with great amiability explained that he would give the start in English, to which Dingley replied, "All right," and continued laughing and talking with his friends in the best of humor. Tattersall, his mechanician, on the contrary, remained very quiet. Dingley had an unlit cigar in his mouth when the start was given, and the fact was taken particular notice of by the French, who remarked frequently, "The American has gone away with a good cigar between his teeth."

Duray was wearing a red, white and blue woolen skull cap when his big De Dietrich car came to the starting point. His machine belched forth much smoke, but he went away very quickly.

Bianci, who is English by nationality and Italian only in name, brought the British contingent again to the fore, and gave the starter an opportunity to again repeat, "One, two, three, go!" in English.

Werner steered No. 15, German Mercedes. The start was explained to him in his native tongue. He listened attentively to what was said to him, said but little, and whilst the engine was running and he was waiting for the minutes to be counted off, played rather nervously with his lever. When the word was given he went off from the starting line like a shot.

The little Italian, Nazzari, started his No. 16 Fiat very cautiously.

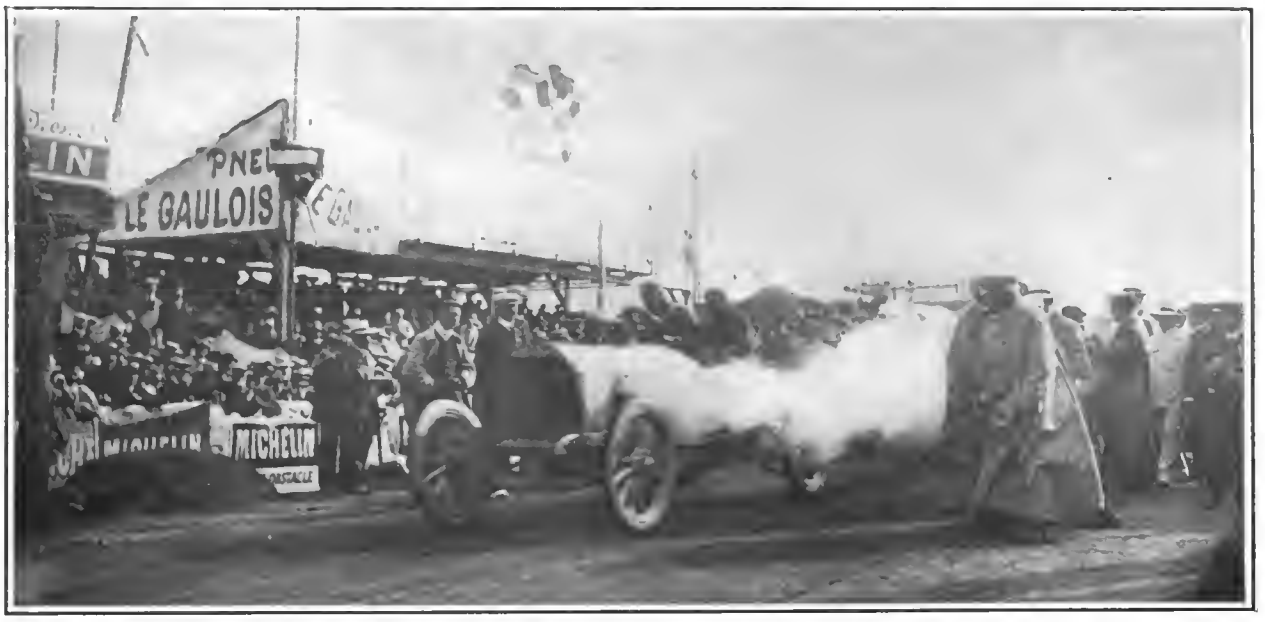
Burton, the burly Englishman, who drove No. 17 Austrian Mercedes, came to the line dressed in collar and cuffs, the only change from his ordinary attire being that he wore a blue jacket. He wore spectacles under his goggles.

At 7:20 A. M. the last car, Tracy's Locomobile, No. 18, was pushed up to the line, thus making its first appearance on this course, it having come too late to be run here before the circuit was closed. Tracy chatted quietly with his American friends, listened to the explanations about the start, and when the word was given went away rather slowly on his high-gear.

He was not more than a few yards down the road before the gendarmes and soldiers were pushing all the officials and assistants through the little wicket by the side of the timer's box, and when Tracy disappeared around the bend in the road nobody was left on the course but the timer and his two assistants and a road commissaire.

No accommodation was provided for the press men except a few tables in the telegraph office behind the grandstand. Owing to the crowd, they had hardly found a few spare inches of space in which to ply their pencils before the boom of the cannon announced that a car had been sighted by the lookout men at the observatory on the top of the Puy de Dome. In the meantime a note had been fixed up at the back of the cabin to the effect that Jenatzy, previously reported as stopped, had restarted after a delay of a few minutes.

Above the strains of the military band a bugle call is heard, and a couple of minutes



GERMANY IN THE G. B. RACE—WERNER IN MERCEDES AFTER GETTING THE WORD TO GO.

later the word went round that a car was coming. All eyes turned down the road to get a glimpse of what is hoped will be Théry's car. The hope is confirmed, for exactly at 7:41:7 No. 1 car rushes past in splendid form and disappears round the bend on Col de la Moreno, distant about 1,800 meters, in less than one minute.

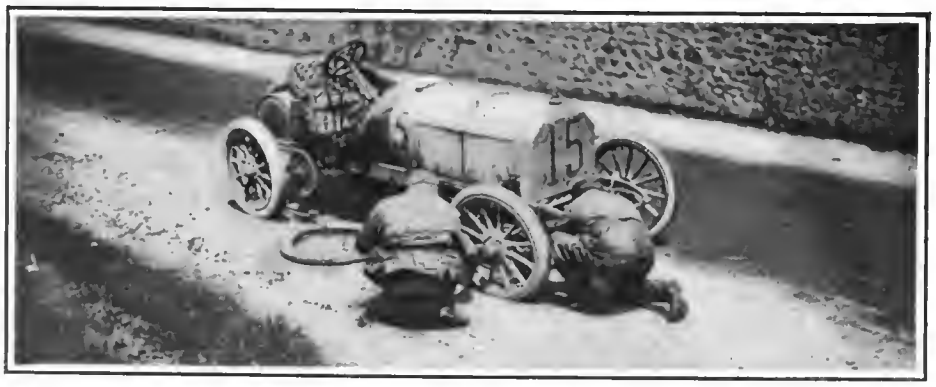
Nothing official has been announced as to how long Jenatzy had been stopped on the road, and speculation is rife as to whether he will arrive next. The English (No. 2) car not being generally looked upon as sufficiently formidable to maintain its position behind Théry. Rumors are abroad that Jenatzy's first stop was of twenty minutes' duration, but nothing officially is known. When a car does appear at 7:49:57 it is neither No. 2 nor No. 3, but Lancia's Fiat No. 4. He dashes by at a tremendous speed, apparently going much faster than Théry, and, indeed, this was the case, for his gain on this round was nearly 7 minutes on the French favorite. The natives look glum, but console themselves by saying that the Fiat car is going too fast to be safe. No. 2 followed next, in 1:54:11, going well, but bumping considerably over the uneven road past the grandstand.

The order thus stands, Lancia (Italy), Théry (France), Earp (England). Rumor comes in that Lancia has had to stop at Rochefort, and has lost all his lead on Théry. This causes excited discussion, especially amongst the editors of several Parisian automobile papers, some declaring that the Italian has only stopped at one of his stations to take in gasoline, others being of opinion that it is an accident due to his excessive speed.

The Austrian Mercedes No. 5, driven by Braun, next comes by in its numerical order, time 1:55:4, and three minutes later is followed by Jenatzy, who has only got fifth position, in this early stage. He is going fast, but it is noticed that his engine misses fire whilst within hearing of the grandstands.

The first five of the list having passed, it is now the turn of the Pope-Toledo, No. 6, to appear. Instead of Lyttle, however, No. 7, Caillois Richard Brasier, comes by, both driver and mechanic being bent forward so much as to be almost doubled up. He has

ITALY IN THE G. B. RACE—LANCIA CROSSING THE LINE AFTER HE HAD BEEN STARTED.



WERNER IN GERMAN MERCEDES STOPPED ON THE COURSE FOR TIRE REPAIRS.

not done so well as his companion, Théry, his time being 2:00:05.

The position now stands: Italy, France, England, Austria, France, Germany.

Eight minutes later Rolls, on the English Wolseley, went by in 2:03:49, thus putting Jenatzy still further back in position for the first round. The car is not out of sight when the Italian car No. 10 comes by at a very fast speed, time for the round being 1:54:44. At the time of passing the mechanic is bent down doing some work on the machine and is so much hidden from view that a rumor ran through the stand for a few minutes that he was not on the car.

Rolls stopped by the roadside before getting out of sight of the stands and is passed by the Italian car. A moment later, however, he is off again. De Cater's Austrian Mercedes comes by next, missing fire, with a time of 2:06:09, which places him ninth and Jenatzy tenth.

Lyttle has not yet appeared, and a telephone message announces that Dingley also is losing ground, for he has been passed on the road by No. 16, which started 20 minutes later.

When Duray's big De Dietrich roared past in 1:47:27, placing him third on the list, loud cheers broke forth from his numerous admirers amongst the spectators.

Three minutes later another Mercedes car appeared, No. 11, driven by Hieronymus. His time is 2:02:28, and his passage causes satisfaction amongst French and disappointment in German circles, for none of the four Mercedes cars now reported have done well.

Four minutes later Lyttle's Pope-Toledo car is sighted, something rather serious must be the matter for the car is only going slowly, and Knipper has left the seat and is sitting with his feet hanging over the side of the car. He waves his hand gayly as he goes by, but Lyttle does not look up. His time is 2:30:09, the slowest yet recorded, though both Burton (Mercedes) and Tracy (Locomobile) afterwards make slower time.

The hope of the Mercedes people is raised a little when Werner goes by in 1:50:01, thus taking third position on the first round.

Four minutes later it is the Fiat steered by Nazzari, which rushes past and Werner loses his third position and takes fourth.

The Wolseley car appears next in 2:12:49, having thus no chance of finishing well.

There is now a long wait, and the crowd amuses itself watching the antics of a balloon man which an enterprising tire manufacturer has let loose, and who is making frantic efforts to disentagle himself from the rafters of one of the grand stands.

While waiting for the next car to appear the position on the first round is summed up, and it is clearly seen that the struggle of the day will lie between France and Italy. Lancia is leading on Théry, Nazzari is close behind him, and has also gained a few seconds on Duray's De Dietrich. Thus, unless there are spacing allowances not yet announced, Italy occupies first and third position.

AUTOMOBILE CLUB DE FRANCE

COUPE GORDON-BENNETT

5 Juillet 1905

Contrôle de

N° du véhicule

	H.	M.	S.
Arrivee	7	18	35
Arrêt		1	
Départ	7	19	35

Le Chronométreur,

W. de Serres

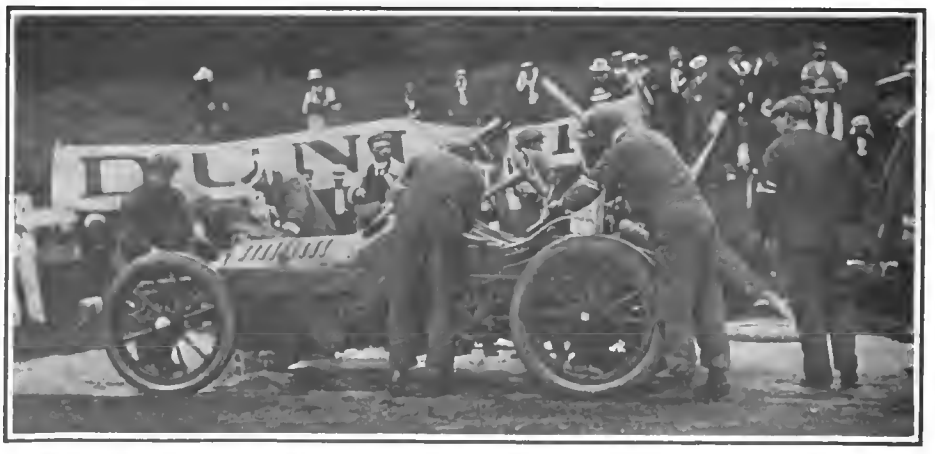
CONTROL CARD GIVEN TO DINGLEY.

Excepting Werner, the Mercedes drivers are not going to be in the race; the English are not to be feared, for only Earp is going well, and the American cars appear to have lost all chance of obtaining a good position. All have now finished the first round except Dingley, Burton and Tracy. Dingley appears to have been lost sight of by everybody, though an early telephone message from one of the stations had announced that he was going well.

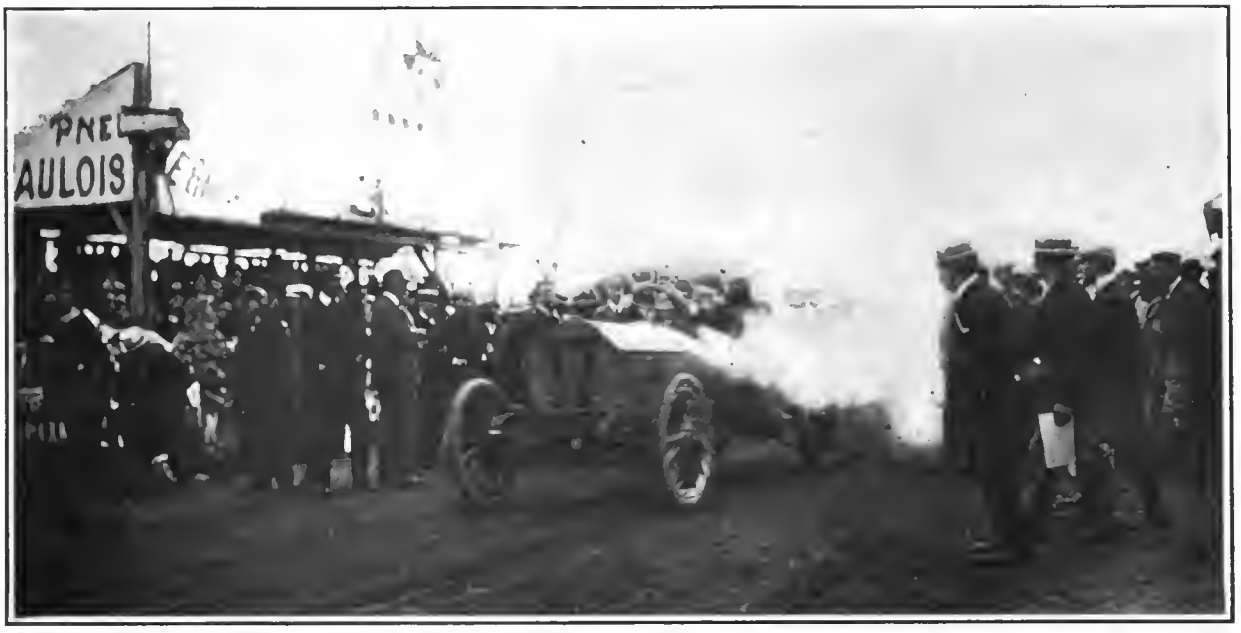
About 9.20 a gun had been fired from the observatory, and this was taken as a signal that Théry was coming round again. Several minutes passed and the signal was not given that he was approaching, and it was only after an anxious, expectant wait of ten minutes that the No. 1 on his radiator appeared on the brow of the hill. He rushed past at a terrific speed, apparently going rather faster than on his first round. As he passed by he put out his hand and pointed to the left hand side of his motor. It was such an unusual thing for Théry to do that conjectures as to what he meant to indicate were made wholesale. The second round was longer than the first, being 1:48:57, but as it was not known whether he had been detained in the controls or not, this was only approximate.

Excitement now reached a high pitch, and it was still further increased when, two minutes later, Lancia's Fiat whizzed past, having done the second round in 1:42:11, and obtained a total advance on Théry of thirteen minutes. This would probably be still further increased, for it was thought that Théry would stop on this round to take in gasoline and change his tires.

Spectators were divided into two distinct camps, those who thought Théry would win, and those who pinned their faith on the



ROLLS, ENGLISH WOLSELEY, STOPPED FOR WATER AND SUPPLIES AT TIRE STATION.



AUSTRIA IN THE G. B. RACE—BURTON IN MERCEDES GETTING AWAY FROM THE STARTING LINE.

Fiat car; as to the chances of the other competitors nobody gave them a moment's thought. Over half an hour was spent in excited discussion as to the chances of France and Italy, and during this time no cars passed, nor did any messages come in from the outside.

At 9:57:30 Burton went by at a fairly good speed, pointing to his rear left tire as he passed, but as his time was 2:27:30 nobody paid any attention to this once-feared rival.

All have now finished the first round except the two Americans, Dingley and Tracy. No news whatever can be obtained as to the fate of the former, and the latter also remains unreported, though this is not very surprising, seeing that he was the last man to start. However, five mniutes after the Austrian, Tracy arrives, having been 2:42:55 in making the first round. Dingley is the only one who has not finished.

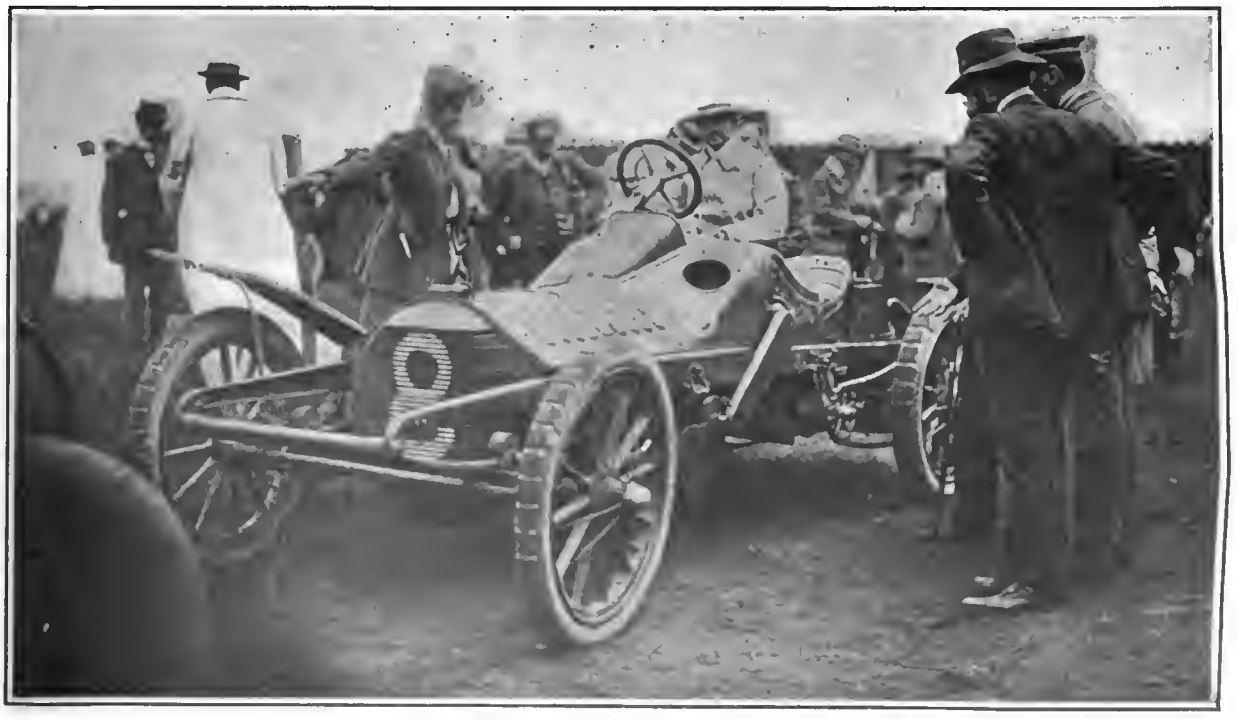
Before Tracy's time has been put on the board, No. 5, Austrian Mercedes appears, being the third car on the second round. The Napier follows, and five minutes later Caillois' Richard Brasier is also on its third round. Both driver and mechanic are still doubled up and again receive loud cheers from the crowd.

During the second round the position of the cars has evidently been changed considerably, for after No. 7 it is No. 10 that appears—Cagno's Fiat car. Two minutes later Jenatzy passes at a good speed, and ten minutes later is followed by Rolls (England).

The official positions for the first round are now put on the scoring board. The order is: Lancia (Italy), Théry (France), Cagno (Italy), Duray (France). Not much notice is taken of it, for the spectators had worked out the classification for themselves long before.

De Caters passes the stand and about 30 seconds behind him is Duray. From a conversation afterward with Duray it appears that these two had a neck-and-neck race for a long distance, and the Frenchman was only able to pass ahead when he got the inside of a long curve.

No. 16 was the next to finish the second



ENGLAND IN THE G. B. RACE—ROLLS AT THE WHEEL OF HIS 112-H. P. WOLSELEY RACER.

round, the time for the Fiat car being 3:46:25 on the two rounds, thus placing him but one minute after his compatriot Cagno, placing him before the two French drivers, Caillois and Duray, and giving him third position in the race.

Werner (Austrian) passes almost unnoticed, it being now sure that no Mercedes car can win the race.

Soon after eleven, the weather, which up to this point had been bright, but cold, changed for the worse, and a few drops of rain began to fall. The wind also increased very much in violence and caused much damage to the awnings of the stands.

Théry's appearance at the end of the third round is now the only thought. At 11:15 o'clock the bugle announced that a car is coming. A few minutes' anxious wait and then Théry rushes by as fast as ever, his time for the three rounds being 5:18:46, he having gained only a few seconds on his time for the first round.

Now there is an anxious wait for Lancia, who at the end of the previous round was leading by thirteen minutes, but starting fifteen minutes later than Théry, was thus following him by two minutes.

All eyes are turned down the road. The bugle sounds. A car appears. It is Bianci (England), running by without a bonnet.

Again a bugle call. Surely this will be Lancia, and there is a moment of breathless expectation, for should it be the Italian, France will have little chance of winning the cup. No, it is Lyttle, in the Pope-Toledo, and instantly a shout goes up, not so much because the American car has appeared as because it is not the now dreaded Italian. The Pope car was going well, much better indeed than when she passed the first time, and it was evident an improvement had been made in her running condition. Knipper was without his cap, and both men were very dirty.

Minute succeeds minute, still no Italian car appears. A quarter of an hour passes; half an hour; and instead of Lancia it is Théry's companion Callois who comes by. The nervous excitement gives way to intense joy amongst the French contingent, for some accident must certainly have happened to Lancia to so delay him, and there is also hope of Caillois' Richard Brasier car taking second position. It is more than one most sanguine Frenchman could ever have dared to hope for.

But after Caillois it is No. 10, Cagno's Fiat, which rushes by in very fast time. He has a total time of 5:39:12, against 5:41:49 for Caillois, so that unless there is a control allowance in favor of the Frenchman, Italy will be compensated for its loss of first position by securing second.

At this time the grandstands do not contain many people, for it is noon, everybody at luncheon, in order to be present at the arrival of Théry, which ought to take place in about an hour's time.

The Napier, the Austrian Mercedes No. 5, and Nazzari, No. 16, Fiat, go by almost unheeded, notwithstanding that the latter is only 16 minutes behind Théry and one minute behind Caillois' Richard Brasier.

The excitement is intense when the gun booms forth again, and every nerve is strung to the utmost when the distant and the near bugle sound forth. There is a presentiment that the car will be No. 1, Richard Brasier.

It arrives. Instantly a shout goes up from a thousand throats: "Théry!" "Théry!" The band strikes up the Marsellaise and for five or ten minutes a tumultuous uproar ensues. Théry drives his car to the weighing-in ground, and in a few minutes comes to the front of the grandstand on his way to the timer's office. His appearance is the occasion for another outburst of enthusiasm. Cries of "Théry!" "Brasier" "Marseillaise!" fill the air, and when the band did strike up it could hardly be heard for the din of voices. Somebody brought forth a big bouquet of flowers and presented it to Théry. M. Brasier came along and kissed his conductor, and thus the enthusiasm continued, the only man amongst them who kept cool was the hero of the hour, for Théry looked as if he would much like to be allowed to go away quietly.

The Wolseley, No. 14 appears, followed imediately by Duray, who is going well and provokes cheers. Lyttle comes next, finishing his third round in 7:30:17, and going faster than he has gone before. It is evident that something must have gone amiss, for both driver and chauffeur are black with oil and in place of caps have each a rag wrapped round their heads.

Caillois finishes his race and for a time the opinion prevails that France has secured both first and second position. Cagno arrives next, having a running time of 7:30:22 3-5, just one minute more than the Frenchman, and a little later Nazzari arrives with 7:17:19 1-5. Thus the Fiat No. 16, has obtained second place unless there are great control allowances to be taken into consideration.

It is now 3:35 o'clock, and all cars are stopped as they arrive at the winning post. The road is again open to traffic, and the people disperse; all of them sure that Théry had won the cup, but many of them not certain whether a Frenchman or an Italian occupies second position.

It was fully an hour and a half later before the control sheets were brought in and the official results announced. When they did come, only a body of pressmen was there to receive them.

What Happened to Each Contestant.

From Our Own Special Correspondents.

NO. 1, THÉRY in Brasier, came to the starting line at five minutes to 6 o'clock and was immediately surrounded by a crowd of admirers and friends, M. Brasier standing at the right-hand side of car and talking from time to time to his driver. At one minute to six, Muller, the mechanic, cranked the engine and took his place beside Théry.

Chronometer in hand, M. Tampier stood by the car and was closely watched by Théry as the minutes were counted off.

As the last seconds were being given, M. Brasier patted Théry on the back of the head, and on the word "Go" being given, exactly at 6 o'clock, Théry let his clutch in slowly, gave a wave of the hand immediately he got over the starting line, went rather slowly at first, changed gears, gave another salute and went off very fast.

In 65 seconds he had covered the 1,900 yards of road visible from the starting line and disappeared in the wood.

His first round was covered in 1.41:07. On second round he was a few minutes longer owing to delays in controls. At the beginning of third round, he changed a complete set of tires, took on gasoline and lubricating oil, the whole operation occupying exactly 5 minutes.

Finished the course in 7:2:42 3-5, easily first.

No. 2, EARP drove Macdonald's six-cylinder Napier car. He went away quicker than Théry, smoke coming from his car as he started Disappeared from view in 61 seconds.

On first round mechanic's and driver's seats worked loose and had to be secured as well as possible with material on car. On the second round the gasoline tank sagged, the feed pipe broke and for rest of race gasoline had to be taken on in gallon cans and fed in by hand.

Two back tires were changed on the second round; front tires were never changed. At end of race right front tire was worn down to the fibre, left one still being in fairly good condition.

No. 3, JENATZY. The start of the German Mercedes, driven by Jenatzy, was watched with keener interest than that of any other car. Dense clouds of smoke belched forth from the exhaust, and when the word go was given Jenatzy crossed the line like a flash. In 57.5 seconds he disappeared from view.

On the first round, at Laqueille he lost 15 minutes owing to ignition troubles, and at the end of the round had dropped down to thirteenth position.

Tire troubles delayed him considerably, he having changed eleven inner tubes during first and second round. On third round he bent his front axle and later broke his rear springs when going over a sharp dip in the road, and then withdrew.

No. 4, LANCIA, the first Italian car, driven by Lancia, was started in very fine style. About 200 yards from the start

he ran over and killed a dog which had strayed on to the track.

Lancia made the fastest time of the day, occupying first position at the end of the first round, 7 minutes ahead of Théry and establishing the record run of the race, his time for the 85:40:27 miles of the course being 1:34:57.

On the second round he maintained his lead, and at the middle of the third round had still further increased it. A big stone thrown up from the road struck the bottom of the radiator when about six miles from home on the third round. The water escaped, the engine heated and seized and the race was abandoned, the car being left on the roadside on the steep upgrade leading to the grandstand.

No. 5, BRAUN drove the first Austrian Mercedes to start in the race. When the word was given, he let his clutch in rather too quickly, the car bounded and then went away very quickly. He disappeared in 62 seconds.

At the end of the first round he held eighth position, worked up to fifth at the end of second, but went back again to eleventh at the end of the third round, and finished second, but went back again to eleventh at the end of the third round, and finished tenth, this being the only classified position taken by an Austrian car, and the second place amongst the six Mercedes entries.

Numerous punctures on every round were the cause of Braun's failure to secure a better position.

No. 6, LYTLE, driving a Pope-Toledo was the first American driver to start in the race. He was as calm as if on a pleasure trip; thanked the timer when told that the start would be counted off in English, and chatted gaily with his friends around the car. One minute before the start Knipper cranked the engine, and jumped into his seat, apparently in the best of spirits.

When the word "Go" was given Lytle let his clutch in very gently and went over the line slowly. He picked up rapidly and climbed the hill at a fairly fast speed, disappearing from view in 1:20.

He passed through the first control at Rochefort one minute slower than Théry and at Bourg-Lastic had lost only three minutes on the final winner.

During the first round his engine heated, but he was unable to discover the cause of it. Not having previously used a pan he thought this might be the cause, so stopped and knocked it off, leaving it by the roadside. No improvement was made and he finished the first round in 2:21:09, going past the grand stand slowly, Knipper sitting on the edge of the chassis with his legs dangling over the side.

On the second round he discovered that his cylinders and crankshaft were receiving no oil, the main oil feed pipe having broken away at the connection, and all the oil having gone on the ground.

During the remainder of the race he poured in oil from tin cans, using altogether six gallons. At every stroke of the pistons the superfluous oil splashed out into their faces, almost blinding them, and covering them from head to foot with a thick greasy mixture.

At No. 6 tire control, near the end of the second round he changed three tires, but as the depot was rather short of men went on without changing the third. When the grand stand was passed at the end of the second round, which was covered in 2:42:51, giving them fourteenth position, both Lytle and Knipper were without caps, their hair fluttering in the wind and their faces very dirty.

The third round was faster, being covered in 2:16:17, securing for them eighth position. Near the end of this round the fourth tire was changed as a precautionary measure, and they went past the grand stand dirtier than ever, rags wrapped round their heads in place of caps.

On the last round one stop was made for gasoline and one for water, and the course finished faster than any previous part of the race, in 2:10:00. Total time 9:30:32, giving twelfth position.

No. 7, CAILLOIS, the second Richard Brasier driver, was sent away with cheers, getting over the line rapidly and disappearing in 68 seconds.

Before starting the mechanician had put an excess of oil into the crankcase, and throughout the race trouble was experienced in consequence. Before reaching Bourg-Lastic he had been stopped five times in 15 minutes. Thus on first round he had dropped to ninth position.

TRACY GATHERING SPEED IN DR. THOMAS' LOCOMOBILE AFTER ROUNDING THE "GRAND TOURNANT" NEAR CLERMONT-FERRAND

On the second round it was thought that he had second position. On the third he had dropped behind the two Italian cars, and on the fourth round he made faster time than any other car, but it was not sufficient to regain the loss during the first round, and his official position was fourth.

Like his companion, Théry, he had no punctures and only changed his tires once, the whole set being replaced and tanks being filled in the phenomenal time of 4 minutes, 50 seconds.

No. 8, ROLLS. The Hon. C. S. Rolls, though himself a builder of automobiles, drove a Wolseley in the race. When he came up to the starting line, surrounded by a large company of Britishers (Rolls is a general favorite), the timer offered to give the start in English. Rolls thanked him in French and conversed with him for a few minutes.

On the dash he had attached a small

LANCIA IN ITALIAN FIAT ROUNDING SHARP CURVE ON AUVERGNE CIRCUIT IN GORDON BENNETT RACE.

card on which was written, in miles and kilometers, the distances apart of the most dangerous turns on the road. The reminder would probably be useful, for the English driver had not long been studying the circuit.

On the start being given Rolls let his clutch in cautiously, went away slowly at first, picked up speed and disappeared in 1:18.

No. 8 ran the most regular course, but never made a round in less than two hours, and his final position was eighth. He changed all his tires once. Just before the start it was discovered that he had no lubricating oil, and some had to be bought locally. It proved to be of bad quality and caused trouble on the run.

No. 9, De Caters. While the second German-Mercedes car, driven by Baron de Caters, was at the starting line, M. Brasier came up and, patting the Baron on the back, said: "Do your best, but don't come in first." On the word being given Baron de Caters let his clutch in quickly, his studded wheels dug a couple of holes in the road and the car went off with a bound. In 62 seconds he disappeared round the bend in the road.

From the beginning tire troubles were experienced, fifteen inner tubes being changed during the race. No round was covered in less than two hours, and the final position was seventh.

No. 10, Cagno, the Italian driver of a Fiat car, made a masterly start, getting over the line quickly, going away rapidly, and disappearing into the wooded height in 62 seconds.

He ran an exceedingly regular course unstopped for anything but a change of tires. Was not so fast as Lancia, especially in the early part of the race, had a keen struggle with Caillois, and finally secured third position.

No. 11, Hieronymus, on an Austrian Mercedes, made a rather bad start, almost stopping just over the line. He picked up quickly and went rapidly up the hill, disappearing in 65 seconds. He only came past the grand stand once, finishing the round in 2:2:28, and retired owing to numerous punctures.

No. 12, Dingley, driver of a Pope-Toledo, was in high spirits when he came up to the starter. He had an unlit cigar between his teeth, which was much remarked by the spectators. The seconds were counted off in English, and on the word "Go" being given, the American let his clutch in slowly and went away at a moderate speed.

He passed through the control at Rochefort in his numerical order. A little later his pan came loose, and the mechanic crawled under the car and knocked it off entirely. Whilst this was being done the two following cars, Nos. 13 and 14, passed him. Afterward a rapid run was made, and No. 13 was overtaken.

After the control at Pontaumur, where he was stopped one minute, he had to take in more water, owing to an escape from the front cylinder jacket. No. 13 then got ahead again. The crack in the water jacket, which first had been noticed at Laqueuille, had now considerably increased in size, and when the control of Pontgibaud was reached all the water had run out. The car was run for about ten miles without water, until the copper jackets turned blue.

It had to be admitted that it was an impossibility to continue the race under such conditions, and the No. 12 was worked slowly down to the tire control at Sayat, where it stayed until the race was over, and then went down under its own power to Clermont, coasting most of the way downhill.

No. 13, Duray. Clouds of smoke burst out of Duray's big De Dietrich whilst it stood waiting for the one minute to elapse. Duray wore a red, white and blue woolen cap and was cheered as he made a perfect start and disappeared in sixty-eight seconds.

On the first round he made good time. On the second he dropped from fourth position to seventh. On the third was down to twelfth, but on the final classification obtained sixth position.

No. 14, Bianci was the last of the English drivers to start, piloting a Wolseley. On the first round he broke a valve spring. On the second regained some of the lost time, and on the beginning of the third changed all tires. His car had not, however, sufficient speed, and its regularity did not give it more than eleventh position.

No. 15, Werner, the last of the German Mercedes, was given his parting instructions in German. He played nervously with his lever whilst waiting for the start, and when the word was given went over the line like a flash, smoke coming out of his exhaust. In 59 seconds he had disappeared. He was fast from the beginning, but tire troubles kept him back. Eleven tires were changed, and notwithstanding this serious handicap he managed to secure fifth position.

No. 16, Nazzari on a Fiat started slowly and did not pick up speed until he was well down the road. His time on the first round was only inferior to that obtained by his compatriot Lancia and his rival Théry, whom he ran very close. On the second round he was slower, and declares that he lost time by being hedged in behind slower cars on the winding road.

His two last rounds were very fast and regular, only varying by a few seconds. His tires never punctured and were only changed once. Final position second.

No. 17, Burton, though an Englishman, drove one of the Austrian Mercedes cars. He came to the line attired in ordinary clothes and wore a collar and cuffs. His car smoked furiously. At the last moment Burton adjusted his goggles over his spectacles, and with great coolness made an excellent start, and went out of sight in 65 seconds.

Tire troubles delayed him much, nine air chambers being changed during the

course, and for fifteen miles he ran on the rim. He finished the second round, but on the third abandoned, and came back to the grand stand when the race was over.

No. 18, TRACY. The last car to come to the line was the Locomobile piloted by Joseph Tracy. An accident a few days before had deprived him of his second speed gear. This particular part could not be replaced, and the entire race had to be run on low and high speeds.

The start was made on the high, and was consequently very slow, 1:17 being occupied in climbing the hill and disappearing from view.

At Rochefort, on the first round, he broke a driving chain on one of the sharp turns. It was repaired by the roadside, and a new one fitted at Bourg-Lastic. Later on, in the same round, his clutch collar seized. A makeshift repair was carried out by the roadside, but notwithstanding it was impossible to get the clutch out, and the remainder of the race was run with it wedged in. It was exceedingly difficult work on the long, winding down grade known as the Cratere, where also the length of his car left but a margin of a few inches to turn in.

On the second round one tire was changed, and at the beginning of the third an entire set was replaced as a precaution whilst a few minor repairs were being carried out. It was time lost, however, for at Laqueille he was turned back, the race having been declared off.

American Tires Make Fine Showing.

From Our Own Correspondent.

CLERMONT-FERRAND, July 6.—As a tire race, it can be said that the 1905 Gordon Bennett cup race was a decided American success and a revelation. It is safe to aver that excepting actual punctures from sharp objects, the tires fitted on the American cars were good for the complete race, without changing.

A prolonged visit at the Col de la Moreno, where the main Michelin, Continental and Diamond repair stations were situated permitted one to get an exact notion of the value of the tires, their wearing qualities, and of the good or bad organization of the stations.

The Continental depot was the largest and the best fitted, but the men employed seemed to lack experience, a majority of them being workmen from the Mercedes factory, who were put to all sorts of jobs on the occasion of the race, and who had not the least idea of the work.

The German cars had very bad luck with their tires, which did not seem to be quite up to the usual mark. Great hopes had been entertained by Germany of a victory on account of the excellent showing that their tires had made in various previous races this year. and on account of the special grade of fabric they have been using lately.

The Mercedes cars are certainly very hard on tires, and the drivers they had were evidently not the kind to spare them, so that it may be believed that the tires were tested a good deal above the limit. The Locomobile, however, was certainly not easier with its big engine and one speed change missing, and its clutch seizing making it impossible to disconnect the engine, and yet the Diamond tires on it stood better than the tires on any European car, showing perfectly normal wear. They were changed at the end of the second round for safety, but examination of the tread at the places where it was cut with a knife to get the tire off the rim quickly, showed that there was still plenty of rubber left, and that the tires would probably have been safe for the two following rounds.

While Dingley's work cannot be taken for comparison, considering that he only made one round, his performance added to that of Lytle, who had nothing but very normal tire troubles, and less than any other competitor, is a decidedly pleasing one for American interests, and it was rightly noticed by the public.

Jenatzy is said to have changed seven tires in the first round alone, and gave up out of disgust, as did Hieronymus and Burton. The latter stopped at the Moreno, where he signified his intention of not going any further. He had used more than twelve tires and had ridden over twenty miles on one of his rims, while the supply left by the previous changes at the depot when he came in, was only of iron-shod non-skids.

De Caters and Werner, who had started on non-skids, were the only ones to pass—the first twice and the second once—without stopping for changing tires.

The French and Italians did not fare much better than their Saxon brothers, but the smooth running qualities of their cars permitted them to figure with safety on a set of tires lasting them one round, the extremely quick work of the Michelin experts allowing them to change without losing more than six minutes each time. Thery appears to have made two rounds per set, as well as Caillois, although this has not yet been ascertained.

After the Americans, the English are those who fared best by far. The Palmer tires gave practically no trouble, although they seemed to lose more rubber in proportion to the distance than the Americans, while the Dunlop made a satisfactory showing.

It appears that the French and German tires were of harder rubber than the others, so that they did not give as readily when passing over loose stones and worn parts of the roads, and thus were cut. The appearance of the French and German tires when removed was that not much rubber had been taken off by actual friction, but that it had been cut out, often in lumps all over the tread, weakening considerably the entire construction. The Diamonds, on the contrary, were more resilient and elastic, and cuts were exceptional on them; they presented a very regularly worn appearance, as if the rubber had been removed with a file, the fabric showing only where the wheels had been dragged while blocked by the brakes.

The work of the American men in changing tires on Tracy's car was remarkably good and rapid, and had it not been that the compressed air connections did not stand, so that hand pumps had to be used, and that other repairs were necessary on the car, the time made should certainly have been fully as good as that of Michelin's with fewer men at work. The organization of the Diamond depots was absolutely perfect, and was a great honor to those in charge, considering that they had to put up with adverse conditions, being but a few men in a country of which they did not understand the language and lacking some of the most necessary facilities.

About six weeks before the great race C. B. Myers, representative of the Diamond

DIAMOND TIRE REPAIR STATION ON THE COL DE LA MORENO IN GORDON BENNETT RACE.

Rubber Co., came down to Clermont-Ferrand to make preparations. Six repair stations were located around the circuit, about 14 miles apart. Just before the eliminating trials the eighteen tire experts, half of whom had been sent from the Liverpool branch and half from America, went out to the main control at Sayat. Five tents were pitched, one of them being for stores, and the remaining four for the men's accommodation.

Here for nearly a month they lived a primitive life, sleeping in the tents and taking their meals at the nearest farmhouse. Twice a day, two hours in the morning and two in the afternoon, they had tire drill, in squads of four each. On July 1 the camp, which had caused much interest in the district, was partly broken up, the men being divided into six parties of three each and placed on the stations around the circuit, where they lived in their tents until the day of the race, continuing their daily drill in rapid tire changing.

The American tire depots were also used as supply and repair stations for the American cars, and the best discipline was observed, so that everything went smoothly and quickly. The only occurrence to be regretted is that which caused Tracy to lose a little time at one of the depots. This depot was located in the easiest part of the course, and on that account the men who were placed there were selected from among those of little experience, there being not experts enough to supply the six depots; Tracy unfortunately had a flat tire near this depot. The work was not as rapid as it might have been, and he had to give some personal assistance.

Clarence Gray Dinsmore Interviewed.

From Our Own Special Correspondents.

CLERMONT-FERRAND, July 6. — Immediately after the race a representative of THE AUTOMOBILE waited upon Mr. Dinsmore in his hotel at Royat and asked him, as delegate in France of the Automobile Club of America, to state his opinion on the great event which had just been decided. Mr. Dinsmore had watched both the eliminating and the Cup races with the closest attention, and as an ardent automobilist and owner of racing machines is singularly well qualified to give an opinion on a race of this nature.

Everything connected with the organization of the race was as perfect as it was possible to make it, he declared. He thought that the change enforced by the government of putting two spacing controls on the circuit a most happy one, and was in some measure responsible for the complete immunity from accidents. By means of this cars were sure of finding themselves alone on the narrowest and most difficult portion of the circuit. The guarding of the road by troops, too, was most efficiently carried out. From early in the morning until the hour when the race was declared off not a single person was on the road except to repair tires or fill up tanks, or who was provided with an official brassard.

Although it was impossible in the United States to make use of police and military as was done in France, Mr. Dinsmore was of opinion that the promoters of the coming Vanderbilt race could take many lessons from what had been done in organizing this year's Gordon Bennett race. He was most strongly of opinion that the Vanderbilt course should be made longer, and that one or two spacing controls should be arranged as had been done in France. Otherwise the first cars would be around the course before the last men had been sent off, several cars would find themselves on the road together, and accidents would result. Speaking of the American team sent over to France this year, Mr. Dinsmore said that he was convinced that no better men could have been found anywhere. Lytle, Dingley and Tracy were as capable of driving a car to victory as were Théry, Jenatzy or Lancia, and, given Théry's machine, they would have done as well as he. Lytle's performance in bringing his car through to the end of the race, he described as marvelous in skill and courage under the conditions in which Lytle found himself. A big mistake had been made, however, in sending over cars that had not been constructed specially for the extraordinary roads over which they had to run; and in doing this a great responsibility had been placed on him and his fellow delegates.

If the circuit had been seen, or reliable information obtained concerning it, no one would have dreamed of sending over cars of 50 horsepower and provided only with two speeds to run against racing machines of 120 horsepower. There was not sufficient power to climb the steep grades, and a four-speed gear was necessary to cope with the varying nature of the road. The Locomobile was too long and too high for the circuit, and was, in addition, sent over far too late.

In reply to a question concerning the future of the Gordon Bennett Cup, Mr. Dinsmore said that France would be obliged in view of her recent resolution to call a meeting and hand the Cup over to the donator at an early date. If the trophy was accepted by another nation and a race organized, France would certainly not enter next year. Later, however, he was of opinion that the opposition to the race would break down, and that French cars would again compete.

There were many builders who were willing to compete for the Cup even under present conditions. It would not be an impossibility for any individual to have a racing car constructed by a French firm and run it in his own name.

How Tracy Fared.

Special Correspondence.

CLERMONT-FERRAND, July 6. — This morning I called upon Joseph Tracy and requested an account of his experiences in the race yesterday, a request that was immediately complied with.

At the outset a mistake had been made, said Mr. Tracy, in sending the car over too late. He had been round the course five times on a touring machine, but had never been round on the racer before the race started. Sufficient information had not been obtained as to the nature of the road over which it would have to run, the wheelbase being much too long for the narrow winding roads of Auvergne.

A few days before the race Tracy broke his second speed gear. Although many spare parts had been brought over, this particular one was missing, and the entire

CAILLOIS IN RICHARD-BRASIER RECEIVING INSTRUCTIONS FROM OFFICIAL AT ROCHEFORT CONTROL.

JOSEPH TRACY IN DR. THOMAS' LOCOMOBILE AWAITING THE SIGNAL TO START IN THE GORDON BENNETT RACE.

race had to be run on two gears only, low and high.

The start was made on the high gear, which accounted for the car getting away so slowly. All went well for the first few miles of the race, notwithstanding that the steepest grades had to be taken on the high gear.

The first mishap occurred soon after leaving Rochefort, where a chain broke whilst taking one of the many sharp turns. It was repaired on the roadside and the car run on to Bourg-Lastic, where a new chain was fitted at the repair station. Whilst the chain was being repaired Théry passed them, and when the new chain was being fitted Lancia went by.

On the narrow part of the road after Bourg-Lastic the car skidded badly, owing to the road being unevenly oiled, and faced right around across the track

Just outside Pontgibaud they were passed by the Napier, which got into the control before them and caused them to be detained four minutes. Outside the town the English car stopped to fill the tanks and Tracy passed it.

From Pontgibaud to almost the end of first round the car ran well, notwithstanding the lack of an intermediate gear. It was especially difficult work on the long winding down grade before Clermont, where the length of the car only left a margin of a few inches when turning. When nearing the end of the first round the clutch collar seized. A makeshift repair was hastily executed by the roadside, and whilst it was being done Burton passed them.

It was impossible to get the clutch out, and for the rest of the race—a part of the first, the whole of the second, and a portion of the third—the Locomobile was run with the clutch in.

On the second round Burton (Austrian Mercedes) and Tracy passed and repassed one another frequently. On this round also one rear tire was changed at the tire depot near Bourg-Lastic, and at the same time water, gasoline and lubricating oil were taken on board.

All the second round was driven at as high a speed as the car could produce in its disabled condition, several cars being passed on the way, particularly the Mercedes who were having much tire trouble.

Tracy pluckily stuck to his task, and started on his third round determined if possible to finish the course. On the Col de la Moreno, some minor adjustments having to be made to the engine, he stopped at No. 1 tire station to carry these out, and at the same time had a new set of tires put on, for he hoped by thus changing whilst other repairs were being done to finish the race without any further stop.

Tracy expressed himself as delighted with the way in which his tires had stood the severe test to which they were subjected. They never punctured or burst whilst running, and the set was only changed as a precautionary measure.

Tracy had got as far as Laqueille on the third round when he was stopped by the officials and told that the race was over.

Cold chicken and bread were offered them by the road commissioners as soon as they were stopped, and after partaking of this exceedingly welcome meal, they returned home to the garage at Clermont.

The guarding of the roads, the control and timing arrangements, and everything connected with the organization of the race was most successfully carried out, said Mr. Tracy. At all the controls they found officials who could speak English, and who treated them with the greatest consideration.

Dingley's Experiences.

Special Correspondence.

CLERMONT-FERRAND, July 5.—Dingley of the Pope-Toledo team, when asked to give an account of his experience in his first Gordon Bennett race, said he had not much of importance to relate. He, however, kindly gave the following particulars for the benefit of readers of THE AUTOMOBILE.

A good start was obtained and a fast run made as far as the first control at Rochefort, where they stopped a second, received a white card on which was written "Contrôle Rochefort," this being placed by the official in the sealed metal box attached to the side of the mechanic's seat, and immediately told to start.

Soon afterward it was noticed that the pan was working loose, so the car was stopped and an examination made. As it was impossible to secure the pan without loss of time, it was knocked off and left by the roadside. Whilst this operation was being carried out No. 13 De Dietrich and No. 14 Wolseley went by, putting the American car back two places.

Pontaumur was passed through, and soon afterward the French car No. 13 was overtaken and left behind. As early as Laqueille a slight leak had been noticed from one of the water jackets, but no stop was made to attend to this. Soon after passing Pontaumur, however, the leak had increased to such an extent that the car had to be stopped and more water taken on. Whilst this was being done No. 13 car got ahead again.

The crack was on the lower part of the front cylinder copper jacket, and had increased so much in size that the water ran out rapidly. A fresh start was made, but all the water was soon lost and Dingley had to give up all hope of continuing in the race.

For ten miles the car was driven without a drop of water, the copper jackets being blue with heat. The car was slowly worked round to No. 6 tire station, where it stayed until the end of the race. Afterward it returned to Clermont under its own power, coasting part way.

Special Features of the Racing Cars.

From Our Own Special Correspondents.

CLERMONT-FERRAND, July 6.—The general features of the different cars competing in the 1905 Gordon Bennett race will be found in the table on page 73 in this issue. There are, however, a number of special points of much interest in the construction of the machines which may be profitably discussed, a few remarks being added concerning their effect on the work of the cars.

The winning Brasier car is practically a copy of last year's racer, with but few alterations than those made necessary by the difficult nature of the course, such as increasing the size of the engine, reducing the wheelbase and tread, lowering the center of gravity, and so on.

Passing to the Fiats, we find in them more interesting details than can be covered in an article of the scope of this one. The most notable feature is the cylinder-head construction. The heads are cast integral with the cylinders, which, in turn, are cast in pairs; the combustion chambers are almost spherical in shape and have no pockets of any kind. There are simply two openings, one on each side of the cylinder, into which the valve castings are fitted in such a way that each cylinder carries its two valves inclined at an angle of forty-five degrees from the vertical, closing downward and placed one on each side.

In the sketch Fig. 1, *I* and *E* are the valve stems. Each stem carries a grooved collar *G*, which is screwed and locked on, while the valve head is contained in a spherical casting which at the same time forms the valve seat and the pipe connection. The casting is attached to the cylinder by means of studs and the joint is made tight by a suitable gasket. In the grooves of the collars *G* are fitted the forked ends of the four-leaf flat spring *S*, which in form closely resembles the usual carriage spring. This spring is secured to a bracket on the top of the cylinder head, and serves to keep the valves seated. A light but stiff beam *B* of forged steel is fulcrumed at *R*, an extension of the bracket being provided for this purpose. In the ends of the beams are screws *W*, which are used to adjust the amount of play allowed the beam before the valves commence to move when the beam oscillates.

To produce the necessary oscillation of the beam an eye *F* is formed at one end, to which is connected the rod *R* whose length is adjustable by means of the turnbuckle *T*. At the lower end of the rod is a stirrup moving in a suitable guide, and this stirrup is acted upon by a cam on the single cam-shaft, so that it is given a downward pull and an upward push alternately, opening the inlet valve and the exhaust valve successively, the flat spring causing the valves to return to their seats.

The regulation of the speed of the engine is effected by sliding the countershaft longitudinally about 1 1-2 inches, bringing a different profile of the cam under the stirrup and thus altering the lift of the valves.

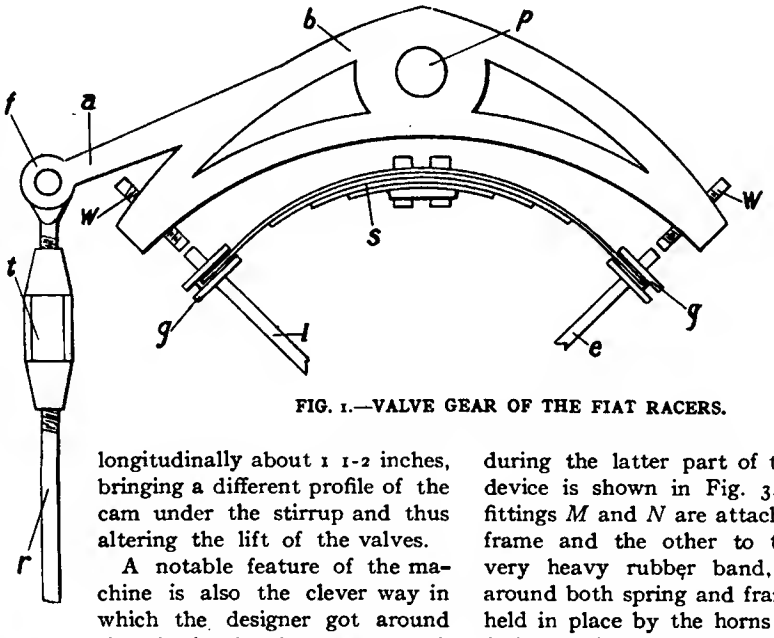


FIG. 1.—VALVE GEAR OF THE FIAT RACERS.

A notable feature of the machine is also the clever way in which the designer got around the shock absorber patent. A cast iron drum *D*, Fig. 2, about 4 inches in diameter is bolted direct to each of the side members of the frame a few inches in front of the axle, but of course above it. A steel band *B*, lined with leather, encircles each drum, the tension of the band being adjustable by means of the bolt and locked nut *N*. An arm *A* secured to the band is connected to the axle at *D* by means of the rod *R* and suitable fittings. The object of this arrangement is of course to introduce a resistance to the violent play of the springs and thus to prevent dangerous jumping of the machine, which is avoided by the Truffault suspension fitted to the French and American cars and to the English Napier.

Less important from a technical point of view, but still quite interesting, is the fact that the Fiat drivers dispensed entirely with the usual type of spring clips, simply winding around the entire length of each spring a single thickness of fine but very strong whipcord. This is by no means a new expedient, being frequently adopted by racers and tourists.

The shock absorbers on the Mercedes cars were simple, but appeared to be rather unreliable, some of the competitors having lost them through breakages during the latter part of the race. This device is shown in Fig. 3. Cast bronze fittings *M* and *N* are attached, one to the frame and the other to the spring. A very heavy rubber band, *R*, is passed around both spring and frame end, and is held in place by the horns on the bronze fittings. The band is of circular section and about 1 inch in diameter. It will readily be seen that the tendency of this stout rubber band would be to prevent the rebounding of the spring. Similar bands were fitted to both front and rear springs, though the mode of application differed slightly. While this absorber is certainly a marvel of lightness and simplicity it comes far from taking the place of the other devices, as it does not in any way take care of the downward movements of the chassis, and did not prevent Jenatzy from breaking his springs, which put him out of the race.

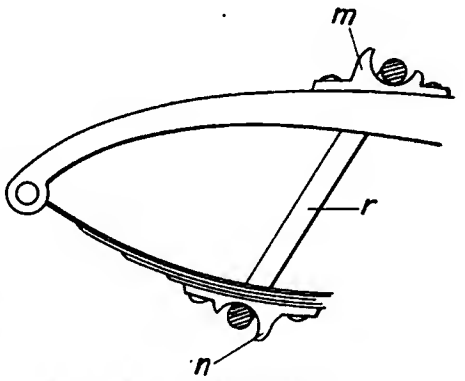


FIG. 3.—MERCEDES SHOCK ABSORBER.

The main features of McDonald's Napier, which was driven by Clifford Earp, are well known. It is interesting to point out that the plain longitudinal radiating tubes (first used by Mooers in the Peerless 1903 G. B. racer), which forms such a noticeable feature of the car, were retained, and also the stout wire wheels.

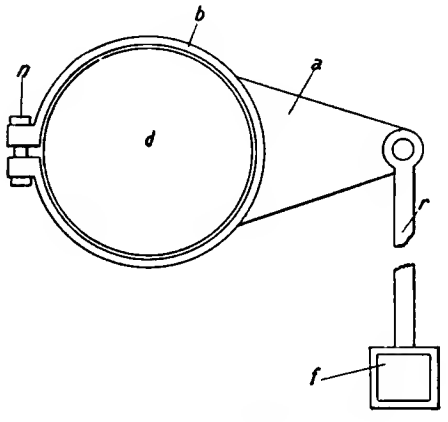


FIG. 2.—FIAT SHOCK ABSORBER.

DETAILS OF CONSTRUCTION OF CARS OF THE DIFFERENT NATIONS WHICH COMPETED IN THE G. B. RACE.

Country	Car	Weight Kilos	Axles	Wheels	Tires Millimeters	Cylinders	Radiators	Clutch	Transmission	Bore and stroke millimeters	Horse-power	Wheelbase, meters and millimeters	Tread meters and millimeters
France	Brasier	998	Nickel steel	Wood	875 x 105 880 x 120	4 vert., cast in pairs	Tubular	Cone	3 speeds, side chains	160 x 140	96	2.65	1.25
France	Dietrich	1,007	Nickel steel	Wood	910 x 90 920 x 120	4 vert., cast in pairs	Honeycomb	Cone	4 speeds, side chains	190 x 150	130	2.85	1.35
Germany	Mercedes	1,007	Forged steel	Wood	870 x 90 880 x 120	4 vert., cast in pairs	Honeycomb	Coil spring and drum	4 speeds, side chains	185 x 150	125	2.92	1.36
Austria	Mercedes	1,007	Forged steel	Wood	870 x 90 880 x 120	4 vert., cast in pairs	Honeycomb	Coil spring and drum	4 speeds, side chains	185 x 150	125	2.92	1.36
Italy	Fiat	1,004	Forged steel	Wood	870 x 90 880 x 120	4 vert., cast in pairs	Honeycomb	Multiple disc	4 speeds, side chains	180 x 150	110	2.80	1.35
England	Napier	1,000	Tubular	Wire	870 x 90 880 x 120	6 vert., separate	Tubular	Cone	3 speeds, shaft drive	160 x 150	100	2.70	1.40
England	Wolseley	998	Tubular	Wood & wire	875 x 105 880 x 120	4 horizontal	Tubular	Cone	3 speeds, with chains	181 x 152	112	2.73	1.38
America	Pope-Toledo	986	Forged steel	Wood	34 x 3 1-2 34 x 4 1-2	4 vertical	Cellular	Cone	2 speeds, side chains	140 x 140	50	2.70	1.36
America	Locomobile	1,007	Nickel steel	Wood	34 x 3 1-2 34 x 4 1-2	4 vert., cast in pairs	Honeycomb	Cone, no leather	3 speeds, side chains	176 x 176	120	2.85	1.35

French and Italian cars on Michelin Tires. American cars on Diamond tires. Wolseley on Dunlop tires. Napier on Palmer tires. German and Austrian cars on Continental tires. Mechanical inlet valves on all cars except Pope-Toledo. All pressed steel frames.

The Wolseley car was practically the same as last year. The Mercedes cars are practically enlargements of the familiar Mercedes type; but the transmission gear case was considerably reduced in size. The inlet valves are located on top and are actuated by a rocker, much the same as the 1904 model touring car.

The Pope cars, which made a very satisfactory showing and were an important object lesson to their makers, were noticeable on account of their long oil tanks running along the engines; and because they were the only cars to use exclusively storage battery and jump spark ignition. The cars were much admired; but it was generally considered that it was a great pity they had only two speeds, which fact caused them to lose considerable time at certain critical moments.

The Locomobile car driven by Tracy also created a very favorable impression; but as every one was aware of the fact that it was notoriously insufficiently tried out, there was a good deal of reserve in the expression of opinions.

History of the G. B. Race.

The first international race for the trophy offered by James Gordon Bennett, the American publisher and sportsman, was run on June 14, 1900, in France, in conjunction with the Paris-Lyons race, over a course of 351 miles. The start was made at 3 A. M., and, according to one report, "despite the early hour, quite 200 people were present." Three countries were represented, as follows: France, Rene de Knyff, Ferdinand Charron, M. Girardot; United States, Alexander Winton; Belgium, Jenatzy. The race was won by Charron, driving a 27-horse-power Panhard, who started third. His time was 9:09:00, his average speed being 38.4 miles an hour. Girardot, in a Panhard, finished second in 10:30.28. De Knyff, Jenatzy and Winton did not finish.

France only was represented in the second contest for the cup in 1901, the only German entrant having withdrawn and the only English machine being barred because it was fitted with French tires, leaving Charron, Girardot and Levegh as the only contestants. The race was run in conjunction with the Paris-Bordeaux on May 29, the distance being 348 miles, or 329 3-4 miles, deducting controls. The contest was made more of a fiasco by the fact that Girardot,

LYTLE IN COL. ALBERT A. POPE'S POPE-TOLEDO AWAITING STARTER'S SIGNAL IN ROCHEFORT CONTROL.

who won on a 50-horsepower Panhard, in 8:47:59, finished eighth in the Paris-Bordeaux race, which was won by Henry Fournier on a Mors in 6:07:44, while Charron in a Panhard and Levegh in a Mors were put out of the contest by accidents. Girardot averaged 37 1-2 miles an hour.

In 1902 the race was run on June 26-27, in connection with the Paris-Vienna contest. The course was from Paris to Innsbruck in Austria, a distance of 383 miles. Only two countries were represented, France by Girardot (C. G. V.), Fournier (Mors), and De Knyff (Panhard), and England by S. F. Edge (Napier). Girardot started first, Fournier second, Edge third and De Knyff fourth. Three Wolseley cars entered by England were withdrawn at the last moment. The cup was won by Edge in 11:02:54.

For the first time in its history the Gordon Bennett race was run as a separate event and altogether outside of France in 1903, when it was held in Ireland on July 2, over a course of 364 miles, deducting the controls. America was represented for the second time, again by Alexander Winton, with the 80-horsepower *Bullet*, and by Percy Owen in the 40-horsepower *Bullet*, and Louis P. Mooers with the 80-horsepower *Peerless*. England was represented by three Napier cars, driven by S. F. Edge, Charles Jarrott, and J. W. Stocks; France by two Panhards, driven by de Knyff and Maurice Farman, and a Mors, driven by Ferdinand Gabriel. Three Mercedes cars, driven by Baron de Caters, Foxhall Keene and Jenatzy, represented Germany. Jenatzy, who started fourth, won in 6:39:00, de Knyff was second in 6:50:40, Farman third, Gabriel fourth and Edge fifth. The Americans did not finish. Jenatzy averaged 54 miles an hour.

Six countries were represented in the race in 1904 which was run June 17 in Germany over a course of 342 miles, or 309 miles deducting controls. The six were Germany, France, England, Italy, Austria and Belgium, the United States taking no part. The three countries last named were represented respectively by three Fiat cars, three Austrian Mercedes and three Pipe cars. Two Mercedes, driven by Jenatzy and de Cater, and an Opel-Darracq, driven by M. Opel, defended the cup for Germany; a Richard-Brasier, driven by Thery, a Mors, driven by Salleron, and a Turcat-Mery driven by Rougier, competed for France, and two Wolseleys, driven by Girling and Jarrott and a Napier, driven by Edge, carried the English colors. The result was a surprise, Thery, on an 80-horsepower Richard-Brasier, who started fifth, winning in 5:50:05, at an average speed of 53 miles an hour, and thereby regaining for France the possession of the trophy. Jenatzy ran second in 6:01:28 3-5, and De Caters was third.

At the Official Weighing In.

From Our Own Correspondents.

CLERMONT-FERRAND, July 4.—After an unduly early rise and a decidedly unpleasant ride at a four-mile-an-hour gait in a jolty two-horse carriage, the plateau de Laschamps is at last reached. Getting there, a happy gendarme directs us with pleasant and humorous remarks to a sort of a twisty alley marked by light wooden fences, which, after a number of turns, takes us back close to the place we started from, a ditch and a fence only separating the two places. The reason for this arrangement not being quite clear to us, inquiries were made, the only plausible answer being that the club, which desires to instruct as well as amuse the people, wanted to give visitors an opportunity to judge the feelings of a rat when he gets into one of those traps where the way in is quite easily found, but where it is utterly impossible to find the way out.

The weighing-in place was arranged in the form of an oblong enclosure; two sides of it were occupied by large frame and duck sheds or tents about twenty feet deep, in which boxes were marked out with wire fencing for each competing firm. In the center was a fenced-in yard where the club officials and the workmen of the different factories alone were admitted, and the latter only when it was their own car that was being weighed. The scale is of the platform type, and the exact weight of the car is taken by means of weights that are the property of the A. C. F., and are always used on such occasions.

The cars when emptied and prepared in every desirable way in their respective boxes, lined up without any predetermined order, just as they happened to be ready, and were admitted to the weighing enclosure one at a time, so that the entire operation took a considerable time. Very friendly relations existed between the different makers and their men, that I-want-to-see-your-car but you-must-not-look-at-mine feeling being entirely absent. By 1 o'clock, when the operators were called off for luncheon, every competitor was in except the three Americans.

Nothing but what always happens on such occasions took place. The only notable objection put forward was against exhaust pipes pointing horizontally from the side of the motor, this being prompted by the fear that with such a construction a competitor might make it practically impossible for another to pass him by simply overlubricating his engine and causing thick smoke; Clarence Gray Dinsmore was one of the promoters of the idea. Full satisfaction was given him, and the Mercedes had to alter their exhaust pipes, which consisted of two short lengths of tubing coming through the side of the

ONE OF THE DRIVING WHEELS OF THERY'S CAR.
Note Special Michelin Tire with Narrow, Non-Skidding Band Vulcanized in the Tread. Also Racing Tire Lugs.

SCENE AT THE WEIGHING-IN ENCLOSURE ON THE PLATEAU DE LASCHAMPS BEFORE THE START OF THE GORDON BENNETT RACE.

bonnet direct from the valve chambers, so as to make them deliver their contents vertically.

Once weighed, the cars were pushed to an out-of-the-way place where they were inspected by the members of the committee and where the details of their construction were noted so as to make further alterations impossible. This being done, the cars were permitted to be removed to be filled up and to be stamped on various parts. The engine was then to be started and the car driven over a sawdust-strewn spot, in order to test the dust-raising possibilities of the exhaust pipes, any raising the dust with the car standing being rejected. The Pope-Toledos and the Fiats had to make alterations from this cause.

In the middle of the afternoon, much excitement was created by a strong windstorm which at first brought huge clouds of rain and of the dust peculiar to that place, the origin of which is the extinct volcanoes forming the hills of the country. This dust burns the face as a sunburn does, and is very bad for the eyes. From that moment, every one present resumed work with goggles on, giving a decidedly comical look to some of the elegant people in top hats, while, after a few minutes, one could have believed it was a motoring wild west show that was going on, everybody and everything being coated with the thick red dust the wind was bringing.

When it became possible to believe that the whole dust supply of the country had been exhausted, a crash was heard, and the sides of the tents that sheltered the English and the Mercedes cars came down, scattering bits of framework and duck all over the place. This created some much needed distraction, and it soon proved a source of amusement, as it was known that all the cars were out on the line for weighing, and no harm had been done except to a few tin cans.

When the crowd had resumed its normal appearance, a few more friends were taken into the scale tent. The tent had hardly been entered, however, when some of the frames were seen to give way under the wind pressure. Every one scurried out except Mr. Dinsmore, who, occupied with the Fiat car which was being weighed, and having engaged himself in an awkward place, did not have time to get out before the crash which soon took place. He soon came out of the debris, however, quite as if it had been part of his business.

Upon inquiry I learned that his presence of mind made him sit on the ground alongside the car on the scale, when he said the tent came down, and that he was able to witness the thing quite comfortably.

Meanwhile, outside, large pieces of duck were torn off to cover up the Pope racers, and preserve them from the dust invasion, there being very little protection of the machinery.

It was not long after everything had been cleared out, that it was found necessary to wait for quiet moments to weigh the cars, the wind pressure making a very appreciable difference in the result of the operation.

By 4 o'clock Tracy turned up, his car being towed by the touring car they had brought along. The Pope cars were weighed and accepted without any kind of difficulty except hammering a little the exhaust tubes to deflect the gas jet horizontally on the dust trials. The cars were well within the limit of weight, and every part being easily reached, no time was wasted at the inspection.

When Tracy's turn came, he was found to be on the very limit of weight, one ounce more putting him out of it, and while the gentleman in charge of the inspection of the cars was very kind and endeavored to make things as easy as possible, it was nevertheless quite difficult to explain to him the principle of the make-and-break system of ignition which Tracy uses on his car. At last, after a few more difficulties created by the altogether too short time that Tracy was given in France, all the governmental papers not having had time to be drawn out, everything was finished to the general satisfaction, and every one returned to town quite dirty, although little more so than the Clermont native in every day life.

All the cars were present at the weighing in, so it was certain that all would start on the following day. The Napier, the Brazier, the German Mercedes and the De Dietrich had also present each a spare car, which was weighed and examined like the regular entries. Earp did not use the car on which he won the English trials, which was Hargreaves' last year's racer; this car was weighed as a spare carrying the number 2 *bis*, and the official English first defender was the six-cylinder machine which MacDonald drove in the Florida race.

BETTING ON THE RACE.

Special Correspondence.

PARIS, July 8.—Private bets made among those interested in the Gordon Bennett race were made freely during the weighing-in, and the odds were, as a rule, as follows: Théry, even money; Caillois, two to one; Jenatzy, three to one; Duray, five to one; De Caters, six to one; Lancia and Werner, ten to one; Braun, Rolls, Hyeronimus and Cagno, twelve to one; Burton, Earp and Bianchi, fifteen to one; Lyttle, Dingley and Nazarri, twenty to one. Tracy was a stranger to the betting men and the lack of knowledge of his work prevented any bets being made on him. It will be noticed that while Théry was correctly placed, Nazarri, who took second place, was a twenty to one shot.

Air-Cooled Motors in Principle and Practice.

By HERBERT L. TOWLE.

IF we exclude the historic but impractical attempts at air cooling by the early inventors of gas engines, we may say that the first air-cooled motors logically related to the present examples were those employed in the early nineties by the French for motor-cycle propulsion. These busy and fussy little machines, many of them sadly deficient in staying qualities and general fitness for hard work, nevertheless filled a real need; and in their improved forms they continue to fill it to-day. It may be fairly said that the commercial existence of the motor-cycle is due to the ability to dispense with water cooling in small motors.

The success of air cooling in small motors naturally led to discussion of its practicability and advantages for larger sizes. Among the advantages, it may be said that the one a few years ago rated highest—namely the elimination of risk of stoppage in the circulation—has now been largely subordinated by improvements in pumps, piping, and radiators. At present the advantages of air over water cooling are its greater simplicity, the relief from the need of periodically replenishing the water supply, and the freedom both from the risk of freezing and from the necessity of using anti-freezing mixtures, and finally the saving in dead weight in the complete car.

Against these advantages, all of them of a character to appeal especially to the owner and operator, must be set the familiar group of engineering difficulties, all of which may be summed up in the one word "overheating."

Heat passes much more rapidly from metal to water than from metal to a gas, and the water, when unconfined, has the further advantage that its temperature can never rise above the boiling point. Hence, given a regular supply of water, the cylinder walls of a gas engine can be kept at a temperature little if any higher, except perhaps on the inner surface, than the boiling point of water. When air cooling is used, on the other hand, there is nothing except constant renewal of the air to prevent it from heating indefinitely, and an abundant, reliable air flow, which reaches all the hot surfaces, is therefore of the first importance.

Heat Transferred by Contact.

Again, it must not be forgotten that, with air as with water, heat is transferred only by actual contact. Of course, this does not mean that every particle of air must touch the hot surface, since much of the air is required only to mingle with and cool the portion heated by contact. It does mean, however, that "radiation" pure and simple, apart from convection, is of very limited service in dispersing the heat. This will be understood when it is considered that in most radiating devices the bulk of the heat is radiated from one hot surface to another hot surface, and only a comparatively small portion is received by surrounding cold objects.

To come down to particulars, perhaps the first thing to be noted is the large volume of air required by reason of its low specific heat. For an equal rise in temperature, approximately 56 cubic feet of unconfined air at 70 degrees Fahr., are required to absorb the same amount of heat as one pound or pint of water. The weight of water is about 60 pounds to the cubic foot at 200 degrees Fahr., from which it follows, if we suppose that the temperature of the air may be raised an average of 200 degrees against 10 degrees for the water, that, for each cubic foot of water pumped, about 168 cubic feet of air will be required to absorb the same heat.

To Render the Air Effective.

Now, it is evident that, to render this considerable body of air effective, one of three things must be done. Either the velocity of the air must be greatly in excess of that of the water, the surfaces remaining approximately equal, or the surface area must be greatly increased, or a compromise must be managed between the two. Practically, a compromise is nearly always reached. As there seems to be no especial danger of getting an air-cooled motor too cool, the usual method is to give the cylinder all the surface practicable, by means of ribs, fins, or flanges, and then to depend on the natural draft due to the car's motion, supplementing this, when the cylinders are large or when it is desired to be able to run the motor throttled with the car standing, with a suitable fan.

When the cylinder is small—3 inches bore or less—and the motor speed is not so great as to produce an excessive flow of heat, there is no great difficulty in getting sufficient cooling effect from flanges cast on the cylinder, especially if, as in motor cycles, the vehicle speed is fairly high. With larger cylinders, however, the difficulties increase, for several reasons. One is that, owing to the greater contained volume, there is more heat to be dispersed in proportion to the wall area, which results in higher mean temperatures inside the cylinder. Another is that the area added by the flanges is less in proportion to the wall area with large than with small bores, since the depth and thinness of flange allowed by the exigencies of molding will be about the same for all bores, and the ratio of outside flange diameter to bore will, therefore, be greater with the smaller cylinder.

To illustrate the foregoing, we may suppose that the radiator area of a water-cooled runabout (with no fan) is thirty-six times the area of wetted cylinder surface—a ratio agreeing with average practice where flanged tubes are used. If the mean temperature of the radiating surface is 160 degrees, and that of the air 70 degrees, the difference is 90 degrees. If now we assume the mean temperature of the flanges of an air-cooled motor to be 250 degrees, the temperature difference between these and the air will be 180 degrees, or double the former. But the practicable increase of area by adding cast flanges is only about 10 to 1 for a flat surface; for a 2 1-2 inch bore with the same flanges it is about 15 1-2 to 1; for a 3-inch bore a scant 15 to 1; and for a 4-inch bore about 14 to 1.

Special Devices Used.

Thus we may understand why even the small cylinder has none too great a cooling area, while for the larger bores special devices are required, in the way of accelerating the draft, increasing the surface, or reducing the quantity of heat to be got rid of. According to the character of these devices certain broad classes may be made, which will be indicated in further detail hereafter.

In addition to the general need of heat dispersion, it is necessary to give especial attention to the parts most liable to overheat. Thus, a high compression—above, say, 70 pounds—is seldom or never employed, because it localizes the heat unduly in the cylinder head. Again, a large exhaust valve, giving quick release to the charge, is useful; and nickel or nickel-steel alloy is essential, because there is little or nothing to keep the valve from getting red-hot. Some builders, it is true, protect it by placing the inlet valve so that the fresh charge will blow upon the exhaust valve. This is effective, but the resulting addition of heat necessarily rarefies the mixture somewhat, reducing thereby the efficiency of the engine. A compact design of combustion chamber is also desirable, since it reduces the heat-absorbing area to be cooled; and in the absence of artificial draft it is nearly essential. This results in the valves frequently being made to open directly into the cylinder head. Another essential point in any air-cooled motor is that there shall be no projecting edges or corners in the combustion chamber, as these cannot be kept cool, and they gather carbon deposit which, becoming incandescent, fires the charges prematurely. To reduce both the area and the angles to a minimum, many builders make the combustion chamber as nearly as practicable of hemispherical or cylindrical form, according to the location of the valves.

(To be continued.)

The change of spark timing should follow, and not precede, the opening or closing of the throttle. When the throttle has been shifted, shift the spark until the engine is doing the best it can with the existing throttle opening.

Automobilists will talk fluently about the "red devils" for hours at a time, but did you ever hear one of them pronounce "chauffeur" confidently and distinctly?—Monroe, Wis., *Journal.*

GLIDDEN TOUR IS A GREAT SUCCESS.

Cars and Their Occupants Reach the White Mountains after Delightful Trip Through Picturesque Country—Baggage Trucks Make Remarkably Good Record.

Staff Correspondence.

BRETTON WOODS, Saturday, July 15.—The first half of the Glidden tour, which ended here last night, must be written down a gigantic success. After four days of running, all but three of the thirty-four cars that left New York last Tuesday arrived here last night before dark. There had been only two accidents that were at all serious, and nearly all contestants for the trophy reported excellent runs with either no mechanical troubles or very minor ones. There are among the daily report cards turned in, a considerable number showing clean scores so far. Even tire troubles have been very few, only half a dozen contestants reporting delays due to punctures.

With the exception of three or four, all the cars have come through the four days' traveling over 420 miles, in apparently excellent condition, notwithstanding most of them were driven as fast as the law allows, their running times averaging well up toward twenty miles an hour, even on Friday, from Portsmouth to Bretton Woods, where all had anticipated bad roads, and the most likelihood of delays.

The general showing has been so excellent up to the present that the tour committee is somewhat perplexed to think of some additional forms of test upon which points can be based, as it begins to see itself confronted with a most difficult task in determining to whom to award the trophy, notwithstanding that duty is still a week and 450-odd miles off.

The tour has developed into something in the nature of a combination "blind run" and "follow the leader" event. The committee is springing surprises daily on the contestants, and so many factors are entering into the competition that, while probably the majority of entrants have strong hopes of winning the trophy, it is impossible for any to feel assurance in the matter, despite all are noting with keen interest the runs that the others are making.

Following Thursday's run from Boston to Portsmouth, on which the ability of the drivers to follow a route of sixty-three miles unmarked by confetti, meagerly described in the route book, and marked by not more than half a dozen arrows was tested, the committee posted a notice in the evening to the effect that all cars must be weighed, with all passengers aboard, in Portsmouth when starting for Bretton Woods yesterday. So all took aboard their full complement of passengers and all the suit cases they could, in order to make the most creditable performance possible in the long up-hill climb from sea level to the foot of Mount Washington.

Most of the drivers, who were unfamiliar with the roads, and also others who had been over them, expected that Friday's run would be difficult, the roads narrow, sandy and rough, and the grades, especially in Crawford's Notch, rather serious obstacles. As a consequence, early starts were made, a large number getting away as close to the permissible hour of 6 A. M. as possible.

A. W. Church, in his 30-35-horsepower Decauville, started at an early hour with a bag of confetti to lead a kind of hare and hounds chase, being accompanied by L. A. Mitchell, the racing man, who is very familiar with the roads. Unfortunately the power of his engine was so great that he dared not run at top speed over the tortuous roads and as a consequence of running most of the time on lower speeds, his engine overheated and his water boiled away, so that he was delayed on the way until several of the leading cars overtook and passed him.

The result of this was that these cars lost the advantage of a certain short cut between Ossipee and Conway and ran nine miles farther than the other contestants over a

GLIDDEN TOURISTS WINDING THEIR WAY THROUGH CRAWFORD NOTCH IN WHITE MOUNTAINS ALONGSIDE RAILROAD.

roundabout road. This cost the loss of first place to Mrs. J. N. Cuneo, of Richmond Hill, Long Island, who made a wonderful run of about 130 miles in 7 1-2 hours, in her White steamer, averaging more than seventeen miles an hour. If nerve and skill in driving alone determined the final possession of the trophy (which was on exhibition in the lobbies of the Lenox Hotel in Boston, the Wentworth Hotel at Portsmouth, and is now displayed in the Mount Washington House), Mrs. Cuneo certainly ought to get it. She is the only woman driver in the tour and she handles her car like a veteran, and with more skill than many a strong man in the contest.

All day long, from Portsmouth to North Conway, her car and J. D. Maxwell, in his 8-horsepower runabout, and C. W. Kelsey, in his 16-horsepower Maxwell, in which the writer was a passenger, were constantly in sight of one another, each of the three machines leading the day's run about an equal part of the time, at an average pace of twenty miles an hour. But at Conway Mr. Maxwell lost the course and ran several miles out of the way, and later, at noon at the foot of the hill in Crawford's Notch the key in his differential came loose and he lost several hours fixing it.

Kelsey had still harder luck, for when he was in first place in the day's run and only thirty miles from the finish, having passed the half dozen cars that left Portsmouth ahead of him, one of the connecting rods broke and he was unable to finish. He had his car hauled a quarter of a mile to the station at Glen, where his party was just in time to catch the Maine Central train at 11:23 A. M. for Bretton Woods.

It had been a most interesting day's run, beginning with an eight-mile-an-hour jog for several miles through Portsmouth and Dover to avoid the many vigilant constables stationed by the roadside with watches to time the tourists and hold up any who exceeded the speed limit. Fortunately warning had been posted in the Wentworth Hotel the night before and some kindly brother automobilist resident in Portsmouth or Dover drove out with his car and stationing himself conspicuously at a fork in the road near the Dover Point toll bridge, just out of Portsmouth, cautioned all the tourists against the police traps. This no doubt saved many from contributing substantially to the treasury of Dover, for the only car known to have fallen into the trap was the official program Ford car, driven by the fifteen-year-old son of W. J. Morgan, promoter of the "Climb to the Clouds."

The passage through Dover was the funniest experience of the entire tour. For miles beyond the Dover Point bridge bewhiskered constables or their deputies, in their shirt sleeves, could be seen in the road ahead dodging back into the bushes or behind trees as the cars came into sight. One old farmer constable had a shotgun which he tried to conceal.

The populace in Dover had evidently been

MRS. J. N. CUNEO OF RICHMOND HILL, L. I., AT THE WHEEL OF HER WHITE CAR, No. 22.

"put next" to the intentions of the police, for most of the residents were out in their front yards as early as 6:30 A. M., to see the fun, and the main street through the business section was lined with spectators, while a dozen or more uniformed police stood in the street ready to hold up anyone who seemed to be going too fast. The last one of these fellows stood on the right of the street against an electric light pole around the base of which he had fastened one end of an inch rope, whose coils he tried to conceal behind him, while he held the other end in his hand, all prepared upon signal from down the line to run across the road and stretch the rope taut to stop a car.

The tourists all jogged along leisurely enough through the town, saluting the residents and throwing gibes to the police, who must feel annoyed enough to have had a hot day's work and been the laughing stock not only of the tourists but also of the residents without collecting any fines for their trouble.

The limits of Dover safely passed, the cars opened up to the full legal limit of twenty miles, despite the twisting ruts in the sand roads that gave riders in the tonneau seats the sensation of being in a choppy cross sea in a small boat. By good luck the showers of Thursday night had wet the deep sand between Dover and Ossipee so that it packed well and made the going easier than had been expected, except for the discomfort occasioned by following the deep ruts at a fast pace.

Glorious weather favored the tourists, as it had on the preceding three days, and the early morning air acted like a tonic to the spirits as we rushed through it. The temperature was still cool after a sudden drop preceding a hard squall that struck Portsmouth the evening before, the sky clear and the air fragrant with new mown hay, pine woods and occasional roadside flowers, particularly wild roses, which were most plentiful.

Something in the air evidently got into Mr. Maxwell's and Kelsey's blood, for they were clearly animated by a different spirit than on the earlier days of the run. Though their cars were not built for such work, they drove them up hill and down, around sharp turns and over thank-you-ma'ams at an average speed of twenty miles an hour for five hours, in which time they had covered 100 miles.

Mrs. Cuneo overtook the Maxwell cars as they were loafing through Dover's police traps, and later when it became very dusty she was allowed to go ahead, as there were no ladies in the Maxwell cars. From Dover on, the cars changed places occasionally, as the White stopped for water, but the three cars kept in sight of one another all the way to Intervale.

It was a positive delight to note the way the little woman driver took the hills and ruts and especially the dangerously sharp turns at the foot of steep descents, and her dexterity won the admiration of all who saw the performance. Through it all she was beaming with glee and clearly was enjoying the run hugely. The only time she showed any concern was when Kelsey's car failed to hold a sharp turn and ran down off the roadway into the grass. As she passed, Mrs. Cuneo slowed up, asked if any damage was done and offered help. None was necessary, fortunately, and without anyone leaving the car, Kelsey drove up onto the road again.

Mr. Maxwell's little 8-horsepower runabout held the pace in a way that surprised not only all others who noted it, but himself and his associates as well. It took many of the steep grades nearly as fast as the steam car, and leaped over the bumps with never a bent or broken spring, which might have been expected. His delight with the four days' performance of the little car is so great that he has decided to enter it in the "climb to the clouds" on Monday and Tuesday. Others, noting its surprising speed and power on the hills, have christened it the "Maxwell Runaway."

It was a bad day for fast driving, nevertheless, and the most serious accident of the tour was the direct result of it. Carl Page,

driving a White steamer, overtook C. J. Edwards in his big 24-30-horsepower Cadillac, and trailed him for miles, unable to pass in the narrow tree-bordered road, and wallowing blindly over the ruts through clouds of dust in the parts of the country that late showers had not touched.

So while passing through Conway Center he tried to get ahead and the pace of both became fast. Leaving the village the road descends quickly to a river and turns abruptly to the right into a covered bridge that is hardly recognizable as a bridge from the top of the descent. At the other end of the bridge the road turns even more sharply to the left. Page, who had got ahead, managed to make the turn into the bridge in safety, although his wheels skidded in loose sand on the approach, but Mr. Edwards, who was close behind, could not swing his heavy machine around in time and instead of entering the bridge it shot off to the left, the big projecting hub of the right front wheel striking a heavy inclined beam. The hub ran up this until the car completely capsized, directly across the entrance of the bridge, pinning the occupants underneath. Women ran out from nearby houses and waved a red table cloth to keep other cars from running into the wreck.

Page, hearing the crash, at once returned to the scene and the Messrs. Pope and Will Soules, in the 45-horsepower Pope-Toledo, Charles Walker and Mr. Bernard, in the 18-horsepower Pope-Hartford, and E. H. Cutler and C. R. Culver, in the Knox, who were close behind, righted the Cadillac and helped out Mr. Edwards, the owner, and his chauffeur, J. G. Rourke. N. L. Newton, a *Brooklyn Eagle* reporter, who was a passenger, was able to crawl from under the car without help. The two other men were carried into a nearby house, and a doctor hastily brought to the scene.

Mr. Edwards had a deep gash over his left eye and Rourke was suffering from a bad wrench of the left breast muscles, although Mr. Edwards was driving at the time of the accident, Mr. Newton sustained a scalp wound, a cut on the chin and a bruise on the left leg. He was brought on to Bretton Woods by Augustus Post, and was suffering severely from nervous shock. The car was much damaged, but was driven to Bretton Woods to-day under its own power and will continue in the tour.

SCENE OF ACCIDENT TO MRS. CUNEO, WHOSE CAR FELL INTO CREEK.

More than half of the drivers stopped at Intervale for luncheon before attempting the *bete noire* of the steep mountain road of Crawford's Notch. Only last week nearly a score of cars belonging to touring parties, got stuck on the grade and had to be hauled up by teams. So Proprietor Merrill, of the Crawford House, acted the good Samaritan and stationed a man and a team on the hill all day, and other men with a barrel of gasoline at the foot of the hill to render aid gratis to all who needed assistance. Although many took in gasoline only four or five reported having to be hauled up by horses. The reason for this good showing is because the road was dry, whereas last week it was muddy and the wheels would slip.

Speed does not enter into the competition for Mr. Glidden's trophy, except that the rules require that all laws shall be observed; despite this, much interest is taken in the early arrivals.

On the first two days the Pope-Toledo was one of the first to get away in the morning and the first to arrive, while one or more White steamers were always sure to be in the van. S. B. Stevens, in his 15-20-horsepower Darracq, was first into Portsmouth Thursday, starting at Boston at 6 A. M., and reporting at headquarters in the Wentworth Hotel at 9:20 A. M., in fair season for breakfast. The distance was sixty-three miles.

George H. Tyrell, in a White car was second at 9:38; E. H. Cutler, in a 14-15-horsepower Knox air-cooled, third, and Charles J. Edwards, in the ill-fated Cadillac No. 9, fourth at 10:12. J. D. Maxwell got

GLIDDEN TOURIST STOPPING TO PAY TOLL FOR THE USE OF A GOOD ROAD ON THE WAY TO BOSTON.

in fifth, in his runabout at 11:15, followed by Albert L. Pope, in the 45-horsepower Pope-Toledo, and George Otis Draper, in the 22-horsepower Packard runabout a few minutes afterwards.

The earliest arrivals at Bretton Woods (Mount Washington) at the end of the first half of the journey were as follows: 1. George T. Tyrrell, White, 12:19 P. M.; 2. A. W. Church, Decauville, 12:19; 3. F. Affenhauser, Maxwell, 1:24; 4. Mrs. J. N. Cuneo, White, 1:30; 5. R. M. Owen, Reo, 1:35; 6. George O. Draper, Packard, 2:00; 7. Ralph Coburn, Maxwell, 2:18.

There was a most interesting spectacle at the Mount Washington House here during the afternoon, as the tourists came rolling in over the meandering road plainly in sight from the veranda for nearly a mile, and rolling up to the steps of the magnificent summer resort hostelry, alighted in their begrimed dusters and goggles, yellow dust all but making them unrecognizable. There were many ladies in the parties, and several children from four to seven years of age. Few of the women and children showed signs of the day's hard run, though they were tossed about unmercifully in some of the cars that were driven over the bumps with more regard for speed than for comfort. None of the ladies were made ill by yesterday's run, probably because the heat was less intense than on the three other days, when Mrs. Holland was taken ill and had to return to her home in New York and Mr. Hugh Thomas, on a Maxwell runabout, was obliged to stop at Boston on account of his wife being ill. He had had bad luck from the start, slewing sideways into a wagon on the first day when only a few miles out from New York and bending an axle. His car was running well after the axle was straightened, but Mrs. Thomas was taken ill and they had to stop at Warren, Mass. Mr. Thomas telegraphed from Boston on Thursday evening that he would follow on Friday, but was unable to do so.

Boston to Portsmouth.

Thursday's run (July 13) was in the nature of a joke by the committee at the expense of the tourists. It was the shortest day's run of all—only 68 miles according to schedule, yet few of the contestants arrived at the Wentworth Hotel, at Portsmouth, without a record of 77 miles registered on their odometers.

Word was passed in Boston Wednesday night that Thursday's run was to be over a "boulevard" skirting the seashore, and, assuming that the run could be made in four hours with the utmost ease, nearly everybody decided to make up some of the sleep lost on the night before the start in New York and on the night of the Pope dinner in Hartford. So many did not get away from Boston on the third day until 8 o'clock or after, expecting to reach Portsmouth in good season for luncheon.

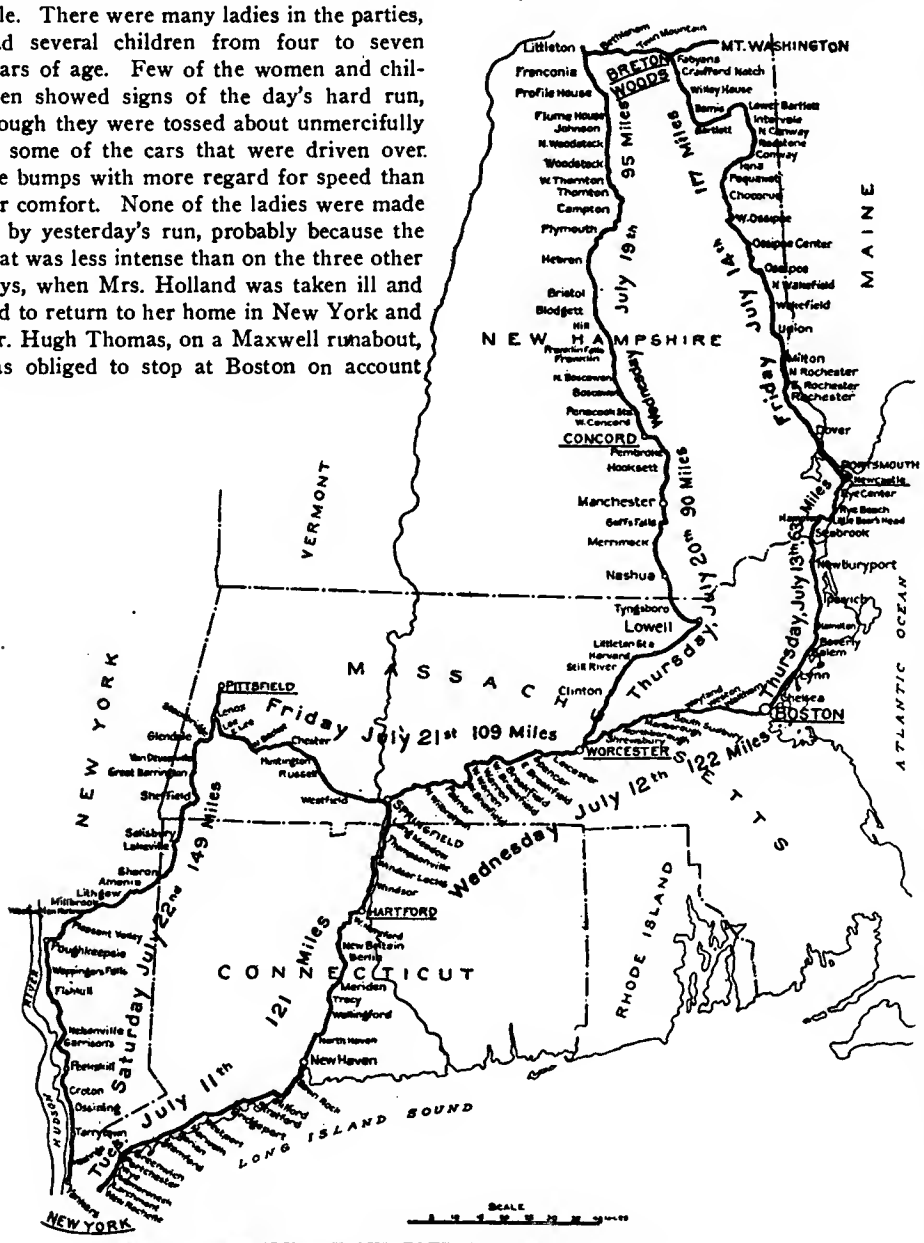
But the "boulevard" proved to be anything but a plain road, and it suffered seriously by comparison with the magnificent macadam state road from Worcester to Boston. Purposely no confetti was scattered; only one or two arrows were posted and the road description was most scant. As a consequence, nearly every tourist had a story to tell upon arrival at the Wentworth of having run miles out of the course. The Knox baggage truck, upon which the writer took passage for the day for the purpose of observing its work, took a wrong fork at Boar's Head and ran nearly ten miles to Exeter before the mistake was discovered and rectified by a retrograde run.

Robert Lee Morrell, chairman of the A. A. A. racing committee, fell a victim to the same trap for a brief time, but as he went to college at Exeter he said he soon recognized that he was on the Exeter road and returned to the forks, where the turn should have been to the right instead of left, although there was nothing to indicate it.

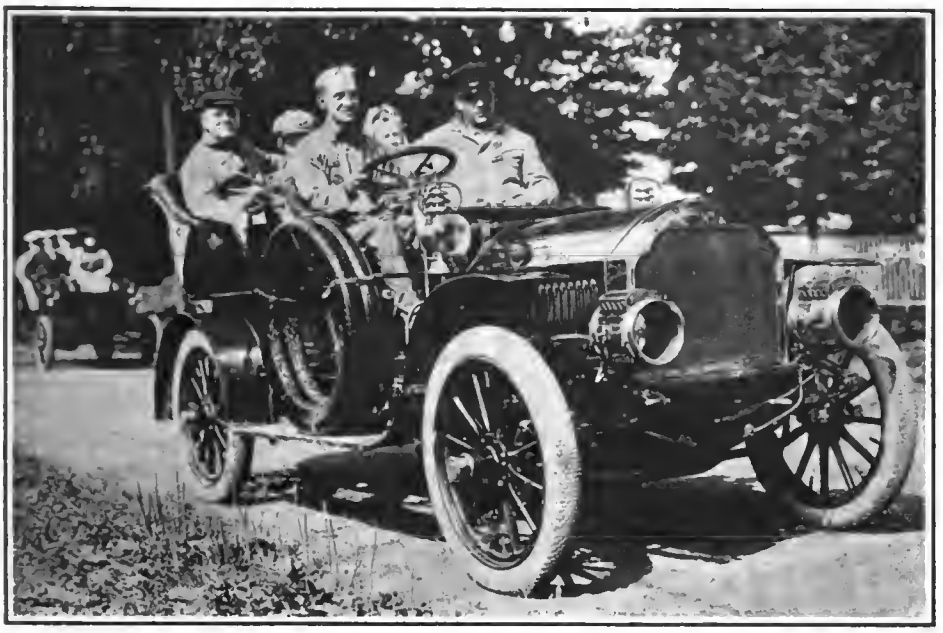
There was another curious kink in the road near Portsmouth, and while the road description called for passage through Rye Beach, many cars missed Rye Beach altogether and arrived at the end of the day's journey by a circuitous road approaching the hotel in exactly the opposite direction from the other cars whose drivers were more adept at picking the course. Mr. Morrell was one of these, as was also the driver of the Knox baggage wagon. At one time Mr. Morrell stopped to inquire the way to Wentworth, and the reply promptly came, "You are coming from it now."

Ray Owen and his party got off the road almost before they got through the outskirts of Boston, notwithstanding they picked up an alleged guide before starting, who said he could pilot them through the intricacies of Chelsea, Lynn and Salem. When they found themselves away out on the peninsula at Marblehead, miles off the map of the route and on the edge of the bay, they stopped for a plunge in the sea before starting on a hunt for the proper road. Aside from this, Mr. Owen said he had had a delightful trip during the first three days, with no troubles.

Another unfortunate visitor at Marblehead was E. H. Cutler, who said he thought that the tour committee would have made a better selection if it had chosen the shore road from Swampscot instead of the old Portsmouth post road farther inland, which is a much worn gravel road that in the main was uninteresting by comparison with the run of Wednesday. The dust was thick and the scenery dreary. Mr. Morrell said the course should have been marked better. But Mr. Glidden laughed as if the troubles of



MAP OF THE GLIDDEN CUP TOUR OF NEW ENGLAND, JULY 11 TO 22, SHOWING DAILY STAGES AND DISTANCES.



PERCY PIERCE AND PARTY IN PIERCE GREAT ARROW IN GLIDDEN TOUR.

the tourists to pick the course were a joke—just as he also made light Thursday night of the anxiety of most of the contestants over the difficulties of Friday's climb of 117 miles up to Mount Washington—which is another story, however.

Despite delays, a dozen cars finished the day's run before 12 M., S. B. Stevens, of Rome, N. Y., arriving first, at 9:20 A. M., after starting at 6 A. M.. Other early arrivals were George Tyrrell (9:38 A. M.), E. H. Cutler (10:12), Charles J. Edwards (10:12) and J. D. Maxwell (11:15). Others who started late and loafed along, one party even stopping to see a baseball game, had cause to regret it later, when they got caught in a heavy squall that brought a drop of 18 degrees in ten minutes at the Wentworth hotel.

By evening, however, all the thirty-four cars had reported with the exception of A. A. Grout's gasoline car; that was last reported stopped between Beverly and Rowley, Mass.; Hugh Thomas, who telegraphed in the afternoon from Boston that he was coming on, his wife having recovered; ond Lewis R. Spear, of the Bay State Association, who stopped in Rye Beach.

Much quiet interest developed during the afternoon and evening in the reports of the activity of the police and constables in the Massachusetts towns through which the tourists had passed during Wednesday and on Thursday morning. The tour committee was informed by telephone that twenty-two warrants had been sworn out for tourists who had been timed as they passed through Leicester, and that some sort of settlement would be expected when the tour party passed through again on the return trip. Later reports said that similar action was being taken in the villages between Boston and Portsmouth and that timers were to be posted to take times on Friday's run to Bretton Woods.

Announcement was made Thursday evening at the Wentworth that on the following morning the cars would be weighed in Portsmouth at the start of the day's run, the weight to figure in the calculations on which the trophy is to be awarded, and as the day's task was expected to be long and arduous, the tourists turned in before 11 o'clock to get an early start in the morning.

All of yesterday afternoon and evening were spent on the hotel veranda and in the lobby, talking over the events of the day's run, each party inquiring of the others the customary questions that always come up at the conclusion of the day's run on an endurance run and in reciting the points where difficult turns were made, the stoppages for tire repairs, the engine and transmission troubles and the condition of the roads.

It was a most interesting assemblage, a large proportion of the individuals being old-timers who have been in most of the endurance runs and organized tours held since 1900. Probably not less than a third of the hundred participants in this tour were in attendance at the Ormond-Dayton races last winter, and the gathering was a strong reminder of that occasion. Most of the officials of the tour and the newspaper men and photographers were also in the South last winter. So there is nothing formal and no stiffness here; but, on the contrary, the utmost friendliness and goodfellowship.

To-day has been spent in resting during the forenoon, when rain fell almost constantly, and in running about through the valley with the cars this afternoon. There have been no tests, as was being talked of last night, and the tourists have done as they pleased, many meeting relatives and friends coming in on the trains and on touring cars.

Hartford to Boston.

A day's tour that will live long in the memory of many of the Gliddenites as the most delightful in their experience was the run of 122 miles from Hartford to Boston on Wednesday, July 12. The weather was glorious, the scenery among the Connecticut and Massachusetts hills and valleys charming in the highest degree, and the roads, especially from Worcester, the noon stop, to Boston the best long stretch of highway that exists in the United States.

Getting away by 7 A. M. from the main street in Hartford, we had a delightfully cool morning ride through the handsome residence section on Windsor Avenue and under overarching trees through a lane with the Connecticut river on the right. The roads then became sandy and in other places the red earth surface was

MR. AND MRS. R. E. OLDS IN REO 16-HORSEPOWER TOURING CAR.

muddy from showers of the evening before. But at Windsor Locks, six and a half miles out, no rain had fallen. We passed through the extremely attractive city of Springfield, home of the Knox and Stevens-Duryea, without stopping, and immediately after struck the poor roads betwen Springfield and Warren. The roads there are tortuous and sandy, although after passing Palmer the route was over the State road, which, however, has not yet been rebuilt with macadam. The scenery about West Brookfield and Brookfield was notably beautiful, but we did not stop to admire it, being content to make the most of it as we rolled along at about sixteen to eighteen miles an hour.

Near Spencer we passed the official program car in trouble with an overheated engine and stopped for quarter of an hour to lend assistance, finally getting it into condition so that it got into Boston without much delay.

As we passed through Leicester there were no evidences of unusual police activity though it developed later that all the cars were timed as they passed through and records kept, upon which warrants were afterward sworn out for twenty-two drivers. These have not yet been served but await the return of the tourists, as the return route coincides with the outward course between Worcester and Springfield, so that all must pass through Leicester.

Stop for luncheon was made at the Bay State House in Worcester, where the tourists were given a reception by Asa Goddard, president, and other officials of the Worcester Automobile Club, who led the way to a couple of bowls of punch prepared for the refreshment of the tourists in the quarters of the club.

From Worcester to Waltham the run was uneventful though made most delightful because of the magnificent roads and pleasing scenery. Arriving at the Commonwealth Avenue hill in Boston, where the annual hill-climbing contests are held, Mr. Kelsey decided to make the ascent just to see what his car would do, although the route did not lead over it and it required retracing the way for half a mile. With three persons aboard, the 16-horsepower car climbed the stiff grade from Allston Avenue to the top in 1 minute 20 seconds, the steepest part being taken on low speed. We reported at the Lenox Hotel, the A. A. A. headquarters for the night, at 3 o'clock.

By 3:30 P. M. all but ten cars had reported and by the official closing time thirty-three entrants had arrived. Mr. Edwards' big 30-horsepower Cadillac, one of the new models with four-cylinder vertical engine in front—the same car that later capsized on the bridge in Conway on Friday—came into Boston at 3:30, o'clock with a smashed running board on the right side, a broken battery box and with the Pres-to-lyte gas tank ripped off. In trying to avoid running into a woman in Springfield the quick turn caused the rear end to slew around until the side of the car struck a post. One of the passengers, a Mr. Truesdale, was thrown out, although not injured beyond a shaking up.

The Knox truck, which divided with the Packard truck the duty of carrying the excess baggage of the tourists, finished the day's run in good season. Starting at 6 o'clock, on touring car schedule, it covered the 122 miles in 9 hours elapse time, or 7 hours 5 minutes actual running time, averaging more than seventeen miles an hour. It was fifteenth in order of arrival, having performed the day's work on a consumption of 11 gallons of gasoline and 2 quarts of oil.

The full consumption of the Maxwell cars was 8 to 8 1-2 gallons each on the first and second day. As access cannot be had to the official report cards turned in each night by the contestants and the representatives of the tour committee decline to give out the information, it is impossible at the present time to give the consumption of the other cars.

E. H. Woods' little 18-horsepower American Napier, the first built in this country, was reported to have broken a propeller shaft so that it had to be towed into Boston.

The official garage Wednesday night was the new garage of the Massachusetts Automobile Club, which contributed free use of the establishment as its share toward the success of the tour. In the Lenox Hotel, where the accommodations for the night were infinitely more satisfactory than at Hartford, the Bay State Automobile Association set out a most palatable luncheon in its regular club quarters where Lewis R. Spear, George O. Draper and E. A. Gilmore, who are contestants in the run and other members who are non-contestants, made the tourists welcome.

New York to Hartford.

Tuesday's run (July 11) from New York to Hartford, a distance of 121 miles, was hot, dusty and eventful. It was led by Albert Pope and Arthur Pope in the big 45-horsepower Pope-Toledo, who got away first, with Harold Pope in the 12-horsepower Pope-Tribune second, and were first into their home city of Hartford after a fast run. The route lay through the attractive suburban towns of New Rochelle, Larchmont, Mamaroneck, Greenwich and Stamford, on the shore of Long Island Sound, and many of the residents were out on their verandas to see the cars go past.

Two accidents marred the day's run, but most of the tourists got through to their destination in good time and with clean scores. Near Portchester Hugh Thomas skidded and ran into a wagon with his 8-horsepower Maxwell runabout, bending an axle so that he had to stop and have it straightened.

More serious was the accident to Mrs. Cuneo's White No. 22. For a long distance near Greenwich the narrow Boston Post Road was excavated on the left side for the laying of a telephone conduit, and on the other side was an embankment. While traversing this stretch of highway Mrs. Cuneo encountered a team near a short bridge over a stream, and in an attempt to avoid it ran the left wheels off of the unprotected edge of the planking. This caused the car to turn over on its side and drop about six feet down into the creek on its left side, throwing out all the occupants, breaking off the condenser, bending the rear axle and steering knuckle connecting rod and breaking a spring. By some marvelous good fortune none of the occupants were injured. The car was promptly righted, and, under its own power, was driven out of the creek, and without any repairing was driven to the end of the day's journey.

"The fastest driving I ever did in my life," said Mrs. Cuneo, at the Mount Washington Hotel on Friday night, "was from Bridgeport to Hartford, after that accident, with the wheels wabbling," which shows something of the pluck of the fair driver. Mrs. Cuneo had the condenser put on again at Bridgeport, a new axle and spring put in, and the steering rod straightened. She is accompanied on the tour by her husband and a gentleman and lady friend, but she has driven the entire distance of more than 400 miles. She is a woman of only about 5 feet 4 inches height and weighing probably 130 pounds, and apparently not unusually strong, though the tan on her face and arms and her willowy figure show that she leads an outdoor life.

When asked how she managed to take the short turns on the last day's run so well, Mrs. Cuneo inquired ingenuously, with a merry twinkle dancing in her eyes, "What turns?"

"You have been over the road to Bretton Woods before, have you not?" was asked. "No, never. I have never driven as far as Boston, and most of my driving has been done on Long Island."

Answering other inquiries, the gentle woman driver said: "I have been driving for four years. First, I had a little Locomobile, then I got a White, which I drove 30,000 miles, and this year I bought a 1905 White. Next year I shall get the new model of the same make, for after the way this machine came through that accident at Greenwich I don't think any other make would satisfy me."

Many of the tourists halted for luncheon at Bridgeport and arrived at Hartford early in the afternoon. The route for the day was unmarked by confetti and was not easy to follow from the guide book directions, so that a number of the parties got off the course at various places.

Occasional glimpses of the sound and small lakes were so tempting by contrast with the heat and dust that finally C. W. Kelsey, in whose car the writer was a pas-

PACKARD OFFICIAL BAGGAGE WAGON WHICH CARRIED A HEAVY LOAD OF TOURISTS' BELONGINGS.

senger, proposed a swim, remarking, "This is a tour, not a race." Finally a small lake near Wallingford gave the opportunity, and the car was driven through a field to the wooded bank and a refreshing plunge enjoyed.

For the most part the roads traversed during the day were good macadamized highways, the old post road from New York to Boston being followed. At West Hartford a man stationed on the road handed the occupants of the car invitations for all to attend a dinner to the tourists to be given at the Allyn House at 8:30 o'clock that night. This dinner proved an enjoyable feature of the night's stay in the very attractive manufacturing city of Hartford, famous for its accurate machine work in a line of varied manufactures, from Veeder odometers, precision tools and typewriters to Pope and Columbia automobiles and Hartford tires.

More than one hundred guests sat down to an elaborate and excellently served dinner that began with a boutonniers for each guest, and, passing through courses of cocktails and clams, soft-shell crabs and sauterne, broiled squab, chicken and champagne and punch, coffee and cigars, ended with toasts and speeches.

Col. A. A. Pope acted as toastmaster, making brief remarks regarding the Glidden tour and its relation to the development of the automobile, and touching on his well-known hobby of good roads. The Colonel, in concluding, introduced Mayor William F. Kenny, of Hartford, who won the approval and applause of the tourists by his sensible remarks regarding the speed problem.

He said there was too much mistaken regulation of automobiles, and that in time, as the public grew more accustomed to the machines, the speed limits would doubtless be removed and operators allowed to drive as fast as they wanted to, but would be held strictly accountable for any accidents caused or damage done. The initial mistake, he said, was made when the attempt was made to regulate the rate of speed, but this was due to the recklessness of a few. "Take a few cocktails, a damn fool and a motor car," he said, "and you have a combination that is hard to beat. No one should be allowed to operate a car who is incompetent in skill, in disposition or who is intemperate.

Referring to good roads, he said that bicycles, automobiles and their manufacturers were entirely responsible for the good state roads over which the tourists had driven during the day, and that the automobilists induced the selectmen of the towns to pass regulations requiring the erection of signposts at the road forks.

Charles J. Glidden, donor of the handsome trophy which is the inspiration of the present tour, referred to motoring as a cure for nervous prostration, and spoke briefly of the pleasures experienced on his long tours "farthest north" and "farthest south." In closing, he warned the tourists against the dangerous grade crossings in New Hampshire and cautioned them regarding the steep descents in the road with sudden turns at the foot.

W. E. Scarritt dilated upon New Jersey's greatest mileage of excellent roads and her

ONE OF THE OFFICIAL BAGGAGE WAGONS. THE KNOX "WATERLESS" TRUCK WELL LOADED.

HANDSHAKING AT RAILROAD CROSSING NEAR SALEM—THE OLD WITH THE NEW.

"perfect automobile law," and told how that law was secured. All decent automobilists are after the reckless, dare-devil, harem-scarem driver, he said, and the New Jersey auto owners got together and agreed upon three fundamental principles: First, all regulations of speed under twenty miles an hour to be wiped out and the driver held responsible for excessive speeding; second, no arrest to be made without warrant for driving over twenty miles an hour, and the autoist not to be treated as a criminal; but above thirty miles arrests to be made on the spot; third, no conviction to be made upon the uncorroborated testimony of an official. The law, based upon these principles, was passed and was signed by the governor, and Mr. Scarritt said he hoped that it would be copied by every state. He closed his address by reciting an apostrophe to the automobile written by himself.

Robert L. Morrell, chairman of the A. A. A. racing board, told of the granting of the permits to hold the Vanderbilt cup elimination trials and race on the new Long Island course on September 23 and October 14, respectively.

Colonel Pope then proposed for serious consideration the practicability of an automobile toll road between Newark and Philadelphia.

W. C. Temple, of Pittsburg, talked about the "perfect New Jersey law" referred to by Mr. Scarritt and said the thought had occurred to him in connection with it to inquire "why didn't they have the New Jersey ideal motor woman, as typified by the law, have the license wart removed from her nose before she had her picture taken?"

The dinner over, the tourists tried to get some sleep as a preparation for an early morning start on the 122-mile run from Hartford to Boston on Wednesday, but they found many of the rooms overcrowded and intensely hot, making the night most uncomfortable. In the morning the dissatisfaction was further increased by excessive charges for the poor accommodations. This was partly rectified, however, by subsequent refunding of the overcharge.

Cars Running Well.

The small cars are making an excellent showing in the Glidden tour, as they have previously done in endurance runs. The smallest car in the tour is the Maxwell 8-horsepower opposed cylinder runabout, which has had no trouble in keeping up with the huge 30, 40 and even 50-horsepower touring cars. The three Maxwell 16-horsepower four-passenger cars have done equally well. R. E. Olds and R. M. Owen have brought their light Reo 16-horsepower touring cars through early and without mechanical troubles. Mr. Olds' car carried five persons—Mr. and Mrs. R. E. Olds, Alfred Reeves, Duncan Curry and Mr. Owen's chauffeur. They reached Bretton Woods at 3:55 o'clock Friday afternoon. On Thursday they lost the road, and, together with Mr. Owen's party, consisting of himself and Mrs. Owen and Mr. and Mrs. John Gerrie, found themselves down at Marblehead, where they stopped to enjoy a plunge in the bay.

C. E. Woods got through to the Mount Washington Hotel after various difficulties, shortly after 6:30 o'clock in the evening.

An excellent showing has been made by the Knox 15-horsepower car entered by E. H. Cutler, president of the Knox Company, and carrying as passenger C. R. Weaver. Mr. Cutler reports no difficulties on the way, but stopped at Conway to give aid to the injured in the Cadillac wreck, and later stopped two hours for dinner, yet arrived at the end of the last day's run at 2:50 o'clock in the afternoon.

Harold Pope has brought his little 12-horsepower Pope-Tribune through in good time, carrying as passengers R. L. Pope and J. N. Deatrich and all their baggage.

S. B. Stevens in his 15-20-horsepower Darracq, E. A. Gilmore in an 18-horsepower Rambler and Charles E. Walker in the Pope-Hartford 18-horsepower four-passenger car, have kept well up with the procession.

All the White steamers are still in the running, and are making their customary good showing in consistent performance. The ladies who are passengers in the Whites finished the first half of the trip showing almost no signs of fatigue. Even the seven-year-old daughter of Mr. and Mrs. Fitch stepped out of the car at the Mount Washington smiling and happy.

The heaviest car in the run is probably Albert L. Pope's 45-horsepower Pope-Toledo, carrying also Arthur W. Pope and a chauffeur, two trunks, two traveling bags and a full complement of tools. Arthur Pope said he believed the entire outfit would weigh between 3,600 and 3,700 pounds. On Thursday's run this car picked up an extra tire shoe dropped by Charles Otis Draper from his 22-horsepower Packard runabout, which otherwise has come through without trouble.

Robert Lee Morrell, driving a 40-horsepower Locomobile, has come through on a comfortable touring schedule without special incident, further than losing his way between Boston and Portsmouth. He is accompanied by Mrs. Morrell and his chauffeur, and has brought along Mrs. Morrell's French poodle dog and 75 pounds of baggage.

NEW ROSS STEAM TOURING CAR, A NOVELTY AMONG THE ENTRIES.

HAROLD L. POPE IN HIS 12-H.P. POPE-TRIBUNE UPON ARRIVAL IN BOSTON.

One of the largest cars on the tour is the Pierce Great Arrow 28-horsepower machine entered by Percy P. Pierce and carrying as passengers Mr. and Mrs. George M. Pierce and Miss L. J. Moody. The party is accompanied by Driver George Ulrich, who drove the Pierce Arrow in the Pittsburg endurance run in 1903. Percy Pierce says they have been making a pleasure trip instead of a race, stopping to call on friends along the way. He reports no mechanical or tire troubles, and says the ladies in the party are enjoying the tour immensely.

Another big and heavy car is the Winton, driven by Lewis R. Speare, of Boston, who has three ladies in his party.

On the Baggage Truck.

Desiring to observe the work done by one of the trucks that accompanied the tourists all the way to Bretton Woods, to carry the excess baggage and save the annoyance of having to express the trunks and suit cases each day to the following night's stopping place—an innovation of no small moment—the writer arranged to ride on the Knox truck on the third day, from Boston to Portsmouth, a distance of 63 miles according to the route book. As it happened, this distance actually grew to 77 miles, as a result of losing the way a number of times.

Leaving the Lenox Hotel at 6:40 A. M., with a light load of suit cases, we threaded a maze of streets paved with Belgian block and street car rails for miles through East Boston, Charlestown, Chelsea and Lynn, where it was necessary to run slowly on account of traffic and also to prevent too much jolting due to the solid tires with which the wagon is equipped. From Beverly to Salem, a distance of seventeen miles, the cities are almost continuous, and practically all the way to Portsmouth, with the exception of a piece of boulevard two or three miles long through Wenham, the road followed was on old worn post road, that evidently was originally cobbled, for stones as large as two fists protruded everywhere through the surface. It was hard going even for touring cars with their big, fat pneumatics, yet the jolting on the truck was not nearly so severe as might have been expected, the long side springs absorbing a great deal of it. Had the truck carried a load of half a ton or more, it would have ridden still more easily, as its capacity is 2,500 pounds, and the springs are stiff: The tires fitted are 3 1-2-inch Firestone side-wire tires, and an examination at Bretton Woods, shows that they have not suffered in the least from the trip.

Three times only we stopped to oil the bearings, and pack the grease cups on the crankshaft, and made no stop, for mechanical troubles. The run would, indeed, have been uneventful had it not been for the difficulty of following the route and for the inability to restrain the all-pervading inclination to "hit it up" when overtaken by a touring car. Several times on such occasions we ran a good twenty miles an hour for a short distance "just to show them that we could," but always the better feeling prevailed, and realizing that we were there for a different purpose and that dust from a truck tastes worse to the man behind than the same dust from a high-powered touring car, "Elmer" would slow down and pull out to one side, giving the others a chance to pass—a courtesy always acknowledged with a grave salute by the driver of the passing car.

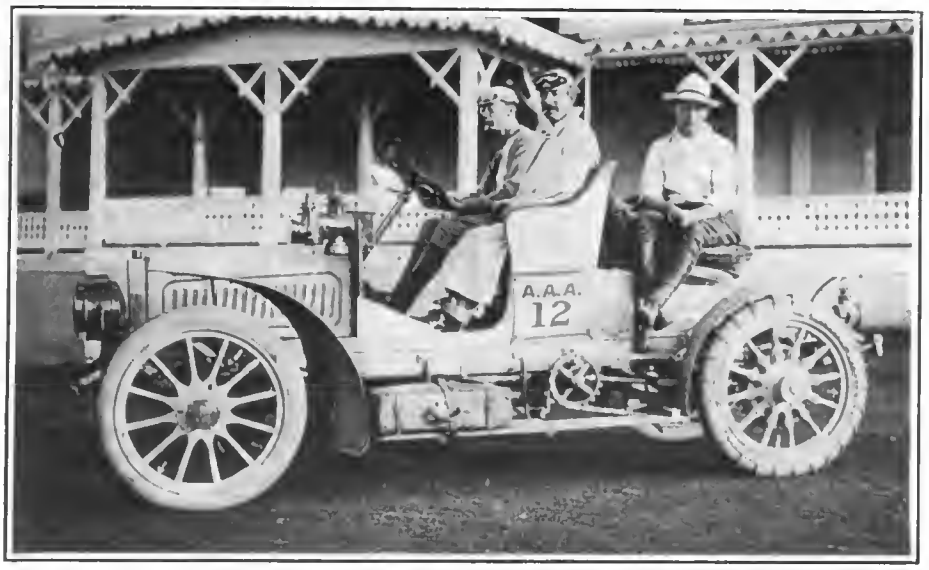
At one time, two of the three persons aboard the truck actually *fell asleep*—on a baggage truck mounted on solid tires and pounding over stony roads at fifteen miles an hour.

We drove up to the entrance of the grand Hotel Wentworth, at Newcastle, near Portsmouth, the official headquarters for the night at 11:47 A. M, arriving ninth. As a considerable number of touring cars had left Boston before the truck got away, it is probable that we just about held our relative position. Our elapsed time was 5 hours 7 minutes, and as we stopped several times, the average speed must have been over fifteen miles an hour, a pace that has been kept up throughout the trip, as the same truck reached Bretton Woods Friday at 5:45 P. M., having started at 6 A. M., and arrived before many of the touring cars. It ascended the Crawford's Notch hill on its own power and made a fine run all the way, without any troubles. It drew up to the entrance of the Mount Washington Hotel bedecked with ferns that the driver and his companion had stopped to pick.

During the stay at Bretton Woods the truck has been doing good work in carrying baggage between the railroad station and the hotel, a distance of about three-quarters of a mile.

Illustrations of the Knox and Packard trucks will be found on page 83.

FIRST AMERICAN BUILT NAPIER CAR, ONE OF THE CONTESTANTS IN THE TOUR.



A. W. CHURCH IN THE BIG DECAUVILLE TOURING CAR WITH MITCHELL ON BEHIND

Entertainments at Bretton Woods.

Staff Correspondence.

BRETTON WOODS, July 16.—A mass meeting and parade of automobiles was the feature to-day—Sunday. After dinner the majority of the participants in the tour and a number of pleasure tourists who have driven up to attend the "Climb to the Clouds," to be held to-morrow and Tuesday, assembled their freshly washed cars on the plaza in front of the Mount Washington Hotel, where photographs were taken. Then the line of cars rolled gracefully down the winding road across the valley to the Mount Pleasant House, three-quarters of a mile, the procession being in plain sight from both hotels all the way.

They lined up again on the terraced road in front of the Mount Pleasant House, forty cars in line, with Charles J. Glidden in the leading car, and again were photographed with a moving-picture machine. It was a pretty sight and an unusual one in New Hampshire—cars of many makes and styles and sizes, from the little runabout to the huge Pierce Great Arrow taking part.

These forty cars did not embrace all that are here, for there are more than thirty cars in the organized tour and nearly as many more have been brought in by regular tourists and by entrants in the "Climb to the Clouds."

Touring parties have been coming in all through the last two days. Yesterday E. C. Bald arrived over the road with a 45-horsepower Columbia for the mountain climb and Mr. Cameron also came in with his little stripped, air-cooled car that he is to drive up the rocky ascent. Friday he and Mrs. Cameron were passed by the Glidden tourists near Wakefield, where they had stopped to pick and eat wild raspberries by the roadside. They were riding in a Cameron runabout, towing the racer behind.

To-day the Richard-Brasier racing machine arrived, having been driven up from New York over the return route that is to be followed by the tourists this week. In all there must be fully sixty machines under shelter in the garage and stable of the Mount Washington Hotel to-night.

So far the combination of the Glidden tour has been a huge success, and where there was a lonesome gathering of about seventy-five contestants, officials and press representatives at the climbing contest last year, there were fully 300 persons here yesterday when the Mount Washington Hotel was formally opened for the season by the booming of a cannon and blowing of the power-house whistle. A considerable proportion of these are only spectators drawn here ahead of the usual time to be onlookers at the various events. It is freely predicted that if the tour and mountain climb are held next year the attendance will be fully as much greater.

It is a matter of concern that the whole of the mountain to the summit of which the climb is made has been bought by a Boston lumber concern, which purposes to denude it of its timber, using the private mountain road for hauling the logs down to a mill. Should this plan be carried out the road may not be in fit condition for another contest next year.

Climb to the Clouds.

SUMMIT HOUSE, MT. WASHINGTON, July 17.—Thick clouds and heavy rain spoiled the "Climb to the Clouds" to-day, and after two ascents had been made in the morning word was telephoned from the top to the start at the base of the mountain, advising the postponement of the trials until 2 P. M. The first ascent of the day was made by C. W. Kelsey, in a 16-horsepower Maxwell touring car. For some time no driver cared to start on the climb, owing to the thick atmosphere, which shut out all view of the road fifty feet ahead. Finally Kelsey volunteered to go first, and got away at 8:04 A. M. On the way up he encountered not only fog but heavy rain and a gale of wind. Despite the conditions, he reached the finish point at the Summit House stable in 1 hour 9 minutes for the eight miles. But the trial was announced as being unofficial.

The next car to start was the Pierce Great Arrow, 28-horsepower, in the event for cars costing $3,000 to $4,500. It was driven by Percy P. Pierce, and started at 9:32 o'clock. It reached the Halfway house in 38 minutes 45 seconds, and reached the top at 10:10:45 A. M. Upon reaching the top, dripping with rain, Mr. Pierce said he had got off the road several times, and pronounced the conditions very dangerous for the high-powered cars. He advised postponing the trials until the weather cleared, which it did partially at noon, occasional breaks in the clouds at the summit revealing magnificent vistas for miles across the tops of the surrounding mountains and down on the tops of the rolling white cloud banks filling the valleys.

At 1 o'clock the trials were resumed, S. G. Skinner starting with a 6-horsepower Olds in the class for runabouts of $650 or less. Five minutes later F. R. Parker started with another Olds runabout, and passed Skinner about half-way up, arriving at 2:01:10 2-5, elapsed time 56:10 2-5. Skinner finished at 2:01:28 2-5, elapsed time 1:01:28 2-5.

Bert Holland started in a Stanley steamer at 2:04, passed the Halfway house at 2:18, and finished at 2:15:20 2-5, his elapsed time being 31 minutes 6 4-5 seconds—the best of the day.

The second best time was 38:45, made by the Pierce in event No. 3. Surprising time was made by the 6-horsepower Olds driven by F. R. Parker, whose running time was 56:10 2-5.

R. S. Crawford, in a two-cylinder 10-horsepower Crawford, got stuck on the road below the Halfway house with electrical troubles and a dry engine, all the water having boiled away.

By 3:30 P. M. eleven cars had started and six had finished. When the last train on the cog railroad departed from the Summit House at 4 o'clock, there were on the road and believed to be still running F. H. Peabody, in a Marion; H. P. Maxim, in an 18-horsepower Columbia; R. M. Owen, in a two-cylinder Reo, and C. W. Kelsey, in a 16-horsepower two-cylinder Maxwell.

Although the weather at the summit was raw, foggy and windy, it was reported clear and sunny at the starting point at the base, and so cloudy at the Halfway house that the drivers could not see the road. Owing to the conditions, the committee, at the base, decided not to send the big, high-powered cars up. For the small cars it was a case of low gear all the way from start to finish.

Olds runabout No. 22, driven by C. P. Adams, made the ascent in 1 hour 20 4-5

seconds, having burst the right rear shoe and punctured the left rear tire, finishing the climb with the tires flat.

The latest report received before leaving the Summit House was that the Marion had passed the Halfway house at 3.23, the Columbia at 3:24, and the Reo at 3.37.

Sunday night, preceding the regular trials, the Packard truck climbed to the top, with seven persons aboard. Starting at 6 P. M., it reached the top at 10:45, after breaking its chains twice. W. J. Birmingham, the driver, who brought the truck through with the touring party from New York, effected emergency repairs with a nail, which he used as a link and block pin. Much trouble was experienced from the cotter pins in the chain breaking. Part way up they ran into a fierce rain and hail storm, and the lights kept blowing out until the supply of matches was exhausted. Altogether it was a weird ride, participated in by Charles Gartz, E. C. Adams, F. Caldwell Walker and Hiram H. Walker, of Detroit; I. H. Boles, of Boston, and H. H. Teabold, of New York.

The truck did good work in the tour, leaving each morning about 1 o'clock and arriving in advance of many of the touring cars. It carried about 2,700 pounds of baggage, consisting of four boxes of photographic plates weighing 250 pounds each, four large trunks and twenty-seven suit cases.

This was a big day at the Summit House, no less than 175 guests having registered by 11 o'clock. It was a brilliant opening for the season. A number of the officials of the contests and newspaper representatives went up Sunday night to be on hand early this morning. Some of them are staying over at the top to-night. A special issue of the daily paper published at the summit of Mount Washington, called *"Among the Clouds,"* was issued, containing the names of the guests and the early news of the day.

The thermometer registered 52 degrees at the top of the mountain to-day, while a telegram posted here announces that the temperature was 78 in Boston at 7:30 A. M.

The summaries of the day's trials are appended hereto.

Results of Climb to the Clouds, First Day, Monday, July 17.

Car No.	Car	Driver	Start	Finish	Time	Event No.
31	*Maxwell	C. W. Kelsey	8:04	9:13:00	1:09:00	3
3	Pierce	P. P. Pierce	9:23	10:10:45	38:45	5
16	Olds	S. G. Skinner	1:00	2:01:28 2-5	1:01:28 2-5	1
22	Olds	C. P. Adams	1:15	2:15:20 2-5	1:00:20 3-5	1
5	Stanley	Bert Holland	2:04	2:35:06 4-5	31:06 4-5	2
20	Crawford	R. S. Crawford	2:17		3:04:34	2
21	Marion	F. H. Peabody	2:34		1:55:27	2
10	Columbia	H. P. Maxim	2:55		1:07:14	3
27	Reo	R. M. Owen	3:12		52:35 2-5	3
31	Maxwell	C. W. Kelsey	3:29		1:00:27	3
2	Pope-Toledo	Chas. Soules			29:37 2-5	5
18	White	Webb Jay			41:35 4-5	5
19	Columbia	H. Willoughby		Failed to finish.		5

* Unofficial.

UNIQUE RACE FOR PORT HURON.

Special Correspondence.

PORT HURON, MICH., July 15.—A unique automobile race is planned in connection with the Annual National Convention of the American Roadmakers' Association, to be held in this city August 29, 30 and 31. It is planned to have all kinds of road users present and the automobile race is planned to bring a large number of users of machines.

Starts can be made from any point at least twenty-five miles distant from Port Huron. The racer must telegraph the hour of starting and must make affidavit as to the time, and he is to arrive at the Harrington Hotel, Port Huron, where the judges will sit on August 29 and 30. The make of the car will be considered, as well as the actual time, in making awards. It is expected that about fifty prizes will be offered.

Leicester, England, claims to possess the first automobile chemical fire engine owned and used by a city. The apparatus for fire extinguishing purposes consists of the usual tank for mixing sulphuric acid with a solution of soda in water, thereby forming carbonic acid gas, and is carried on an automobile capable of running about thirty miles an hour. A report is soon to be made on the efficiency of the apparatus.

PERCY P. PIERCE AND PARTY IN THE PIERCE GREAT ARROW IN A GLEN NEAR MT. WASHINGTON.

Letter Box

Auto Conditions in Vermont.

Editor THE AUTOMOBILE:

[233].—Northern New England has enjoyed an excellent season for automobiling. Vermont has come to the front with many new machines this year, the prevailing type having four cylinders, and being good hill climbers; as a rule the cars are giving satisfaction. What this section of the country requires is a thoroughly good hill-climbing car and one that is simple in construction and easily taken care of in case of trouble, for garages and automobile experts are few and far between and each owner must know his machine and be able to make his own repairs. Heaven help him if he gets caught by trouble out in the country without personal knowledge of how to do what is necessary; for nobody for miles around knows the first thing about automobiles.

We find that the frightening of horses is being reduced to a minimum; in fact, we have very little trouble, except in remote localities where automobiles are still novelties. The problem is working itself out and is ceasing to be the bugbear it once was.

I presume most of your readers know about the annual gathering of automobilists in the White Mountains and the hill-climbing contest, the "Climb to the Clouds," at Mount Washington, which occurs July 17 and 18. The A. C. of Vermont has issued a call for a club run to the White Mountains for that occasion, and the prospects for a well-attended trip are very encouraging.

The most encouraging thing about automobiling is the fact that the powers that be are talking of good roads. Our State Road Commissioner had gatherings of prominent road experts in many localities throughout the state last winter and spring, and the automobile question was almost invariably brought up. In some instances it was decided that automobiles were a nuisance owing to the frightening of horses; but on the whole the feeling was that they were good things and had come to stay. The fact that the automobile movement is being pushed by men of means was taken as a strong indication that better road conditions would surely prevail at no very distant date.

A firm of piano dealers in this city is using the automobile to increase its business. The firm found that there was frequently difficulty in getting prospective customers to the store to examine the stock, as good excuses were always forthcoming; but they have informed me that during the past week they have closed three sales by bringing the customers to the store in an automobile. The prospect of an automobile ride was always a strong inducement.

There is no doubt that there will be a greater increase this year in the number of automobiles than ever before, so far as this part of the country is concerned. Operators are becoming more cautious and more courteous, partly because of the strenuous state law, and almost the only difficulties experienced now come from outside automobilists, who feel in their importance that they are sole owners of the state highways, and on this account make themselves more or less obnoxious. But even this is not so prevalent as it was in years past; automobiling is becoming so popular here that people are getting well accustomed to the machines, and one does not hear half the swear words that once were heard from non-owners. H. W. HALL.

Burlington, Vt.

Massachusetts Police Trap.

Editor THE AUTOMOBILE:

[234].—Automobilists will be interested to know that a police officer of South Sudbury, Mass., has set a trap for automobilists on the state road which passes the Wayside Inn, in the vicinity of the water tank, of which I enclose a photograph.

A VICTIM.

WATER TANK MARKING MASS. POLICE TRAP.

Boston.

Registration in New Jersey.

Editor THE AUTOMOBILE:

[235].—Kindly inform me if it is necessary for an automobilist who is registered at Albany, N. Y., to register in New Jersey in case he makes a two weeks' tour in that state? If so, where can such registry be made, and what is the cost? V. A. W.

Port Ewen, N. Y.

If you are going to use your car in the state of New Jersey it will be necessary to register in that state, notwithstanding the fact that your car is registered in New York state. Apply to the secretary of state, Trenton; the fee is $1. You have doubtless noticed by this time that the information for which you ask and many other important points of all the state automobile laws of 1905 are tabulated and presented in a compact and convenient form in THE AUTOMOBILE for July 13.

Corner Cutting Nuisance.

Editor THE AUTOMOBILE:

[236].—Why is it that most drivers of automobiles fail to blow their horns when approaching curves and corners; and that they persist in cutting corners, thereby crossing to the wrong side of the road at the most dangerous points? In this way they run serious risks of bad accidents. Cannot you make this clear to your readers, so that they can take proper precautions when turning corners?

I know of an accident that occurred in this vicinity not long ago owing to corner cutting which caused the death of one person, and on the Fourth of July my car was nearly run down by another car, the driver of which cut the corner and got on the wrong side of the road just as I came to the corner from the opposite direction.

H. S. N.

Elizabeth, N. J.

For White Mountain Tourists.

Editor THE AUTOMOBILE:

[237].—As there are to be many automobiles touring in the White mountains, I should like to give a warning to those using the road between Gorham and Jefferson, via Randolph. About two miles from Gorham to the westward is Gorham Hill, about one and one-half miles long and at the lower end very steep. It is so steep that any automobile with rear wheels stationary will slowly slide down: there are sharp turns, the view cut off and road narrow. At the base is a railroad track (B. & M.) on a curve and steep grade. To meet timid horses on the worst portions is sure to mean trouble, and the only safe way is to get out and see that the way is clear before proceeding.

I have ordered a sign and will erect it at the beginning of the worst parts, but a word of warning through your periodical may avert a bad accident. When the hill is wet, even greater care should be used.

This is the only road that leads from the Androscoggin Valley to Whitefield, etc.

G. N. MCMILLAN.

Gorham, N. H.

We tender our thanks to the correspondent for the warning contained in his esteemed letter. His courtesy and consideration in supplying a needed sign of warning will be much appreciated by autoists who have occasion to use the road.

Jake Martindale came to town in his new auto Wednesday. It it quite a fine machine, and will be of great benefit to its owner.—*Pine Village Sentinel.*

Thery is Decorated.

Special Correspondence.

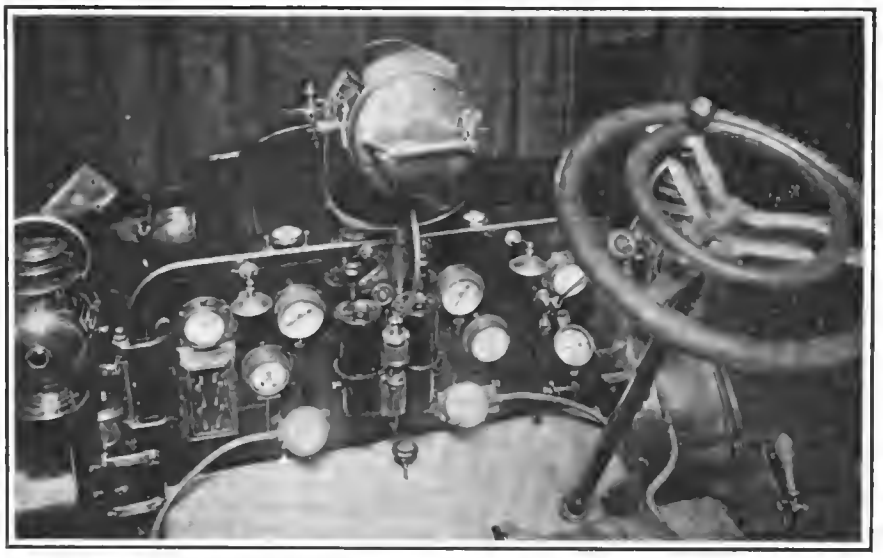
CLERMONT-FERRAND, July 6.—After the Gordon Bennett race, Thery was presented to M. Clementel, who invested him with the decoration of Officier de l'Académie Francaise and pinned the violet ribbon, the sign of this honor, on to his leather jacket. Théry has announced his intention of never driving in a race again. He is satisfied, he says, with his four victories in two years, and will not tempt fortune further. Henceforth he will work peacefully in the factory untroubled by any care for the morrow.

Attachments Galore.

Purchasers of automobiles are, as a rule, impatient to get their cars into commission immediately, and lose no time in getting on the road. An exception to this rule, however, is F. A. Bostwick, of Chicago, who purchased a White steam car early last winter and up to the commencement of the summer months he had yet to take his first ride in the machine. Nearly six months was spent in fitting the car with a whole host of extra appliances, all of which were put on by Mr. Bostwick himself, who admits that the addition of these fittings has become a fad with him.

On the car are six lamps for various purposes, a clock, a barometer, a thermometer, a grade indicator, an odometer, a speed indicator, a huge horn known as a "dragon," an electric bell, a steam whistle, a "kid eradicator," for getting rid of small boys, and a few other minor things. The lamps include electric lights for illuminating the tonneau and the various gauges and indicators on the dash, which are clearly shown by the accompanying engraving; these lamps are supplied with current by storage batteries under the seats and switches are located in the box seen on the left side of the dash. The device which Mr. Bostwick calls a "kid eradicator" consists of a steam jet placed out of sight near the rear step. When a small boy "hooks on" the rear step, he unconsciously informs the driver of his presence by ringing a small electric bell; whereupon the driver presses a plunger and shoots a jet of steam in the direction of the intruder's legs. Another novelty is a fan belt indicator, which indicates at a glance whether the fan is running or if the belt has broken or become slack.

Mr. Bostwick has spent about $800 in putting all these attachments on his machine, but he is still of the opinion that there are things that he as missed and he is open to suggestions as to what is necessary to complete the equipment.



REMARKABLE COLLECTION OF INSTRUMENTS ON DASHBOARD OF STEAM CAR.

THERY'S CAR IN THE HANDS OF THE MICHELIN TIRE EXPERTS.

Excellent work is being done by the Automobile Club of America in furnishing road maps to its members. It is well-known to automobilists that on account of the comparatively recent origin of the sport, together with the vast extent of the country and the constantly changing condition of the roads, good road maps have been unobtainable. The Automobile Club maps are based on the United States Geological Survey maps, their correctness thus being insured; and practically every road is shown. Through routes are indicated by red lines, and distances between principal points are shown in red figures. Two maps, covering northern and southern New Jersey, have recently been issued. These maps are well mounted on cloth and will stand much hard usage; a heavy cardboard case contains them when not in use. The size is sufficient to make even minor roads clear, and when folded they are of convenient size for carrying.

As gasoline tanks and leads sometimes leak, and the fluid more rarely become ignited, it is a wise precaution on the part of the automobilist to carry a fire extinguisher in the car for such emergencies. Even though it may never be required, it will add something to the driver's feeling of security; and should it ever be wanted, it will, like a revolver in the West, be wanted badly. Fire extinguishers, made especially for the purpose, are easily carried, cheap and efficient.

The presumption is that C. D. Walker of Atchison, has given up all aspirations to run for Congress. He has purchased an automobile, and rides about the country scaring the farmers' horses and causing trouble. If we had any notion of running for office a man couldn't give us an automobile.—*Holton (Kan.) Recorder.*

THE AUTOMOBILE

VOL. XIII. No. 3

Published every Thursday by

THE CLASS JOURNAL CO.,
Flatiron Building, Madison Square,
NEW YORK CITY.

Cable Address - - - - Autoland, New York
Long Distance Telephone - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2.00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 5 o'clock p. m. Monday for the issue of Saturday following.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies Printed in 1904,	- - -	**639,300**
" "	**This Issue,** - -	**14,000**
" "	**Since Jan. 1,** -	**405,500**

Gordon Bennett Race Results. The extensive report of the Gordon Bennett race, published elsewhere in this issue, shows that the contest was undoubtedly the greatest in the history of automobiling, not merely as a sporting event, but from an engineering standpoint, for the magnificent machines certainly were triumphs of engineering skill. It is true that an American car did not win; but though defeated, the Americans were not disgraced. In the first place, the American cars were handicapped by not being built expressly with a view to racing on the Auvergne circuit, as were many of the foreign cars; and in the second place the drivers were placed at a great disadvantage by lack of familiarity with the course. Tracy, in particular, never went over the course in a racing car until he started in the race itself, what little he knew of the road having been picked up by hurried surveys in a touring car. Many of the foreigners, on the other hand, knew every inch of the road from long practice on it.

The dogged perseverance with which Lytle and Tracy stuck to their work in the face of enormous odds until Lytle finished in twelfth place, bringing an American car through the Gordon Bennett race for the first time in the history of that contest; and Tracy still running in the third round when the race was stopped, sticking to his work with his clutch immovably locked in, was little short of heroic. It is not surprising that Clarence Gray Dinsmore, the official representative in France of the A. C. A., should have expressed the opinion that the Americans, given cars adapted to the course, were the peers of any drivers in the world.

Another cause for congratulation is the excellent showing made by the American tires and the good work of the experts who handled them at the tire stations. The American tires stood the terrible treatment in a way that was a decided surprise to the foreigners, and the American tire men showed the effects of perfect organization and training by the sharp, quick, clean work done when required.

Efficiency and durability in the highest degree were shown by the competing cars. It is little short of marvelous that a machine weighing but a trifle over 2,000 pounds should carry a motor of such concentrated energy as to produce a horsepower for every seventeen pounds weight of the whole, as was the case with one of the competing machines, and propel the car at more than railroad speed over the 341 miles of the course practically without mechanical troubles.

The reliability and efficiency of the modern automobile have been strikingly shown not only by the Gordon Bennett cup race and recent European touring car contests, but by our own Glidden tour, now in progress, in which so many competing cars have made remarkable records that there is a strong possibility that the committee of award may be seriously embarrassed in selecting the winner of the trophy. It is not making too strong a statement to say that the modern automobile has proved it right to be classed among the products of the highest development of engineering skill, and that the results attained are wholly due to contests in which the cars are tested to their utmost limits.

✸

Tendencies Noted in G. B. Constructions. An inspection from a mechanical point of view of the cars that competed in the 1905 race for the Gordon Bennett cup, indicates that the different manufacturers, working independently and using their best efforts, are progressing along lines that converge to a common point; each year the differences grow less apparent, as one after another the best methods of construction are proved by the process of elimination and adopted by the manufacturers; and even now the main features are so nearly alike that, with the exception of the Wolseleys, the cars may be said to be of a common type. The difference of appearance made by the shape of the hood or the form of a radiator is so slight as to be practically negligible. A comparison of the main features of these eighteen cars, which may safely be said to represent the highest development of the automobile, is exceedingly interesting.

In the important matter of frames there is absolute unanimity, pressed steel frames being the only kind in the Gordon Bennett race. Vertical cylinders in the front of the car were used by all except the horizontal-cylinder Wolseleys; and with the exception of the six-cylinder Napier, all had four cylinders, the majority being cast in pairs. Chain drive was used on all except the shaft-driven Napier, and this car was the only one that did not use wood artillery wheels, though the Wolseleys had their wooden spokes re-enforced by heavy wire stays. Low tension magneto ignition was fitted to all cars except the Napier, the Wolseleys and the Pope-Toledos, which used high-tension systems and storage batteries. The Richard-Brasier cars used thermo-syphon water circulation and all the others had pumps. All the cars were practically right up to the weight limit, there being a difference of only 33 pounds between the lightest and the heaviest car—a negligible difference, once the scales were passed.

The comparison of ratio of horsepower to weight is rendered difficult by the fact that the rated horsepower may or may not represent the effective horsepower of the machine; but taking figures as they are given, it is interesting to note that the De Dietrich, driven by Duray and rated at 130-horsepower, shows the highest ratio, having one horsepower for every seventeen pounds weight; while the opposite extreme is touched by the 50-horsepower Pope-Toledos, with approximately one horsepower for every forty-three pounds. Théry, the winner, drove a car having one horsepower for every 22.8 pounds, and this figure approximately represents the average of the competing machines. It will be noted that the Pope-Toledo cars were very much underpowered, as compared with the other racers, and the performance of Lytle, who finished in twelfth place, is, therefore, all the more creditable.

On looking into the matter of cylinder dimensions, the surprising fact is developed that not a single motor has a stroke that measures more than the bore; and in most cases the bore is greater than the stroke; in fact, this is the case in all except the American cars, which have "square" cylinders—that is, the bore and stroke are equal. The shortest stroke, in comparison to the bore, exists in the 130-horsepower De Dietrich which has a bore of 190 millimeters and a stroke of 150 millimeters—a ratio of 1.26 to 1. It would be extremely interesting to know what piston speeds are attained in these short-stroke motors, but there is at present no reliable data available on this point. Probably, however, the speed will be about the same as with longer stroke machines, as the increased number of revolutions a minute will doubtless make up for the shorter stroke.

Clutches are, apparently, in need of a good deal of experimental work, for there is less uniformity in practice among the builders of Gordon Bennet racers as to clutch con-

struction than any other detail. While the familiar leather-faced cone had more adherents than any other one type, it is to be noted that leather is giving way to metal, the multiple disc type showing up very well indeed, being used on the Fiats that took second and third places. The helical band clutch of the Mercedes cars also did well.

Among the mechanical features of particular interest may be noted the simple and, judging from results, effective valve operating mechanism of the Fiats; this arrangement is described and illustrated in another page of this issue. The location of the spring, out of contact with highly heated surfaces, and the fact that duplicate sets of cams, push-rods and springs, are avoided, are obvious advantages. The saving of weight thus effected is also worth consideration in a racing car that is built very nearly up to the extreme limit of weight.

In the matter of shock absorbers, which are now recognized as necessities on racing cars, the Truffault type was most used; but the Fiat cars were equipped with friction devices, using a drum and band instead of a pair of discs, an arrangement which gave entire satisfaction. Not so, however, with the arrangement adopted by the German Mercedes cars. These machines simply had huge rubber bands slipped over the springs and held in place by crotches. As might have been expected, the rubber was unequal to the strain, and trouble followed, a number of Mercedes springs breaking. Both these shock-absorbing devices are described elsewhere.

It may be concluded that there is a remarkable sameness about the Gordon Bennett racers, so far as their main and essential features are concerned. It can hardly be said that this is the result of copying; rather it would seem to be the result of independent work leading the manufacturers to similar conclusions, though from different directions. It seems likely that the Gordon Bennett race, if continued from year to year, will eventually become a contest of skill in driving automobiles of almost identical construction throughout.

✱

An Inaccurate Consular Report. A consular report, to which attention was called in an article in our issue of July 13, states that "English motorcycle manufacturers report a great falling off in the demand for motorcycles, and believe that this branch of the industry is doomed." This report, founded on a newspaper paragraph, has been extensively copied by American newspapers, as was the original paragraph by the English press, and is an example of the harm that can be done by failure to verify authenticity of information.

Consular reports are looked upon as being reliable; and, as a rule, consular agents exercise great care in securing authentic information. A consular agent cannot, of course, be expected to be a technical expert in every branch of industry, or even to be well informed on every one of the numerous matters on which he reports; but it is only reasonable to expect that before accepting information as being correct inquiry should be made as to its truth. In this case the paragraph, originally published by anti-automobile papers in England, was copied practically word for word into the consular report, the information being made to appear as though emanating from "British manufacturers."

While the statements regarding the failing of the industry, as well as those crediting the motorcycle with intolerable "vibration and noise," have been thoroughly disproved, the fact remains that the report has been widely published by newspapers throughout this country, to the undoubted injury of a young and rapidly growing industry. Derogatory reports of this kind find a ready publicity among a certain class of publications, while anything of a contradictory nature seeks in vain for space; and doubtless this will continue to be the case until the public becomes educated, to some extent, to what the automobile and its kin, the motorcycle, really are. In the meantime, if those who have it in their power to disseminate semi-official information will exert themselves to insure the accuracy of their statements, much good will be done.

NEW DEALERS' ASSOCIATION

Formed in Buffalo for Mutual Benefit and Protection of Members.

Special Correspondence.

BUFFALO, July 17.—At a meeting of automobile dealers from various sections of the country, held here to-day, the National Association of Automobile Dealers was organized, and the following officers and directors were elected:

W. C. Jaynes, Buffalo, president; Harry Unwin, New York, vice-president; H. C. Wilcox, Buffalo, secretary-treasurer; W. H. Baker, Buffalo, general counsel; directors: W. C. Jaynes, Harry Unwin, Harry C. Wilcox, Walter Ginthers, Chicago; Percy L. Neal, Philadelphia; William M. Murray, Pittsburg; Frank G. Smith, Jr., Detroit: E. P. Brinegan, San Francisco, and A. C. Halsey, St. Louis.

While those attending the meeting refused to divulge its happenings, or the objects of the association, it is understood that the main purpose on the part of those concerned is to secure more liberal accounts with manufacturers, and to effect an agreement whereby the manufacturers shall return to the dealer his deposit and a sum equal to such profit as the dealer would realize in case of the failure of such manufacturer to make delivery of any accepted order. From this it may be readily seen that the association is formed solely for the mutual benefit and protection of its members.

AUTOMOBILISTS MUST PAY.

Action of Turnpike Companies Upheld by Maryland Court.—To Appeal Case.

Special Correspondence.

WASHINGTON, D. C., July 15.—A decision of great interest to automobilists in this section of the country has just been rendered by Judge Keedy, sitting in the county court at Hagerstown, Md., wherein it is held that Maryland turnpike companies have the right to collect tolls from automobile users, although the charters of said companies may not expressly confer the power to make such charges; the right, the court contends, may be implied when not expressly conferred.

Washington motorists particularly have followed with interest the proceedings instituted some weeks ago by John Stonebraker, an automobilist of Hagerstown, who was required to pay toll over the turnpike of the Boonsboro Turnpike Company while driving his car to Funkstown. Stonebraker filed a bill in equity for an injunction to restrain the turnpike company from collecting any tolls from motorists, and he also raised the contention that the tolls imposed were excessive. The next step was the filing of a demurrer by the turnpike company, and this demurrer to Stonebraker's bill of complaint was sustained by Judge Keedy, who held that the complainant had not stated in his bill such a case entitled him to relief in equity.

"The right to collect tolls was the means employed by the Maryland legislature to secure turnpike roads," says Judge Keedy in his decision. "In broad and comprehensive terms, with the intention to subject every conceivable carriage of pleasure to the payment of toll, the legislature in 1822 granted the Boonsboro Turnpike Company the express power to collect toll and prescribed the rates. It was impossible for the legislature in 1822 to have foreseen the invention of the automobile, yet the English language seems to have been exhausted when the vehicles on which tolls could be collected were named in the charter. It is manifest that the legislature tried to subject to toll every class of pleasure carriage."

Judge Keedy did not go into the question of the reasonableness of the toll charged Stonebraker, stating his remedy was not in equity, but in a court of law. If excessive tolls were charged he must seek relief in an action at law to recover such excessive tolls.

This is the first case in Maryland where the question of the right of turnpike companies to charge automobilists toll has been passed upon, and the case will be carried to the State Court of Appeals. Stonebraker is being backed by the machine owners of Hagerstown to the number of fifty or more; and by others throughout the State, to whom the question is of vital interest.

Whether the automobile ran into the policeman or the policeman ran into the automobile is the strange question that confronts a Brooklyn magistrate before whom a New York automobile driver was brought last Friday charged with running into a mounted policeman on Ocean Driveway. The evidence submitted was so conflicting that the magistrate adjourned the case to July 14, holding the autoist, Percy Heath, in $1,500 bail. One man testified that he saw an automobile speeding up the parkway with a mounted policeman in pursuit, and that the machine stopped suddenly and the policeman crashed into it from behind.

King Alfonso of Spain is getting generous with his automobiles, and has been presenting cars to his mother and his aunt. Looks suspicious, however, for he once bought a couple of new cars of higher power for his own use. He has a dozen or more machines in his garage.

AUTO ORDINANCE VOID.

So Declared by Grand Rapids Police Judge.—Pending Cases Dismissed.

Special Correspondence.

GRAND RAPIDS, MICH., July 15.—Local automobilists have practically jumped out of the frying pan into the fire. Owing to their indefatigable efforts Judge Hess has declared the city automobile ordinance void in police court and automobilists are now governed by the State law. The city ordinance allowed nine miles an hour in a defined business district, and twelve miles an hour in other sections of the city. The State law allows but eight miles an hour in the business district, and fifteen miles in the residence district.

This would be satisfactory if the business district in the State law was the same as that defined in the ordinance, but it is not. In the State law it is defined as "any street in which buildings are erected for business purposes." Upon the construction of this depends the automobilists' happiness.

It has already been announced that the business district will include portions of streets in front of business places and, as the business places are well scattered throughout the city, there is only a small part where the speed of fifteen miles will be allowed.

Five cases pending under the city law have been dismissed, but there have been forty-five arrests under the ordinance since the State law went into effect, and fines have been paid in nearly every case. Now the unlucky forty-five are wondering whether or not they can recover the amounts. The State law went into effect on June 15.

A meeting was held by the local automobile owners, under the auspices of the Grand Rapids Automobile Club, to take some action in regard to the continued enmity against the machines, and it was decided to start a crusade against the "persecution," as they call it.

The plan is to show the board of police and fire commissioners how slow eight miles an hour really is, and members of the board will be asked to ride in the machines. It is also proposed to see that other laws are enforced, especially the law regarding the closing of saloons. A resolution was introduced by State Representative Heald, instructing the club to stand back of all members who are arrested on a charge of exceeding the speed limit. The resolution was adopted.

LICENSE REVOKED IN MASSACHUSETTS

Special Correspondence.

BOSTON, July 17.—The first automobile license which has been revoked by the Massachusetts Highway Commission is that of Frederick B. Edwards, of Boston. The commission gave him a hearing recently on four charges—overspeeding, using a license plate that did not belong to him on a machine for which it was not issued, and giving a wrong name. After the hearing, the commission decided to put into effect the most drastic punishment within its power, and revoked the man's automobile privileges.

POLICE METHOD IN CLEVELAND.

Special Correspondence.

CLEVELAND, July 15.—Automobile owners are now exempt from arrest on violation of any ordinance except that of speed. The police have proclaimed immunity to them, but the proclamation brings no joy to the hearts of operators. No warrants are being issued for owners, but for the machines themselves, and these are hauled off to jail.

This novel departure is the result of a method which autoists have adopted to evade the ordinance providing that numbers must not be placed on the car axle. An officer spots a misplaced number. He looks up and finds the name of the owner, or the one who is registered as the owner. He is arrested, but says he sold the machine and will not tell to whom. Now warrants are being issued for "John Doe," which means the machine. Afterwards the police get to work and locate the real owner.

Within the past few days a dozen or more "John Doe" warrants have been issued. The police keep a lookout for the number of the offending car, and gather it in wherever it is found, and if the real owner wants his machine he must come in and pay the fine.

MINNEAPOLIS NEW ORDINANCE.

Special Correspondence.

MINNEAPOLIS, July 15.—After a number of rather ridiculous amendments had been offered to the pending automobile ordinance, the city council has passed the measure embodying the following provisions:

An operator's age limit is placed at 18 years; a board of examiners, consisting of the health commissioner, city electrician and master mechanic of the fire department is named, which board shall pass upon the qualifications of an applicant for license to operate, and the speed limit is fixed at eight miles an hour in thickly settled sections of the city and twenty-five miles an hour elsewhere.

The measure passed the council by a vote of 16 to 7, and is now in effect.

TESTING CLEVELAND ORDINANCE.

Special Correspondence.

CLEVELAND, July 15.—Cleveland operators are awaiting with considerable interest the decision of the local Police Court in the case of a driver who was arrested for exceeding the speed limit of eight miles an hour for downtown streets. William Boyd, the attorney who was defending the driver, argued that willful and conspicuous action must be proved; that it must be shown that the automobilist knew how fast he was going, and that he was intentionally breaking the law. The attorney claimed that no speed-indicating device had been perfected that was accurate.

The argument so appealed to the judge that he took the matter under advisement for two weeks.

OTHERS TO TRY FOR COAST RECORD.

Special Correspondence.

SAN FRANCISCO, July 13.—Several owners of cars are planning to try for the trophy offered by Fred A. Jacobs as a reward for equaling his time between Los Angeles and San Francisco—31 hours and 35 minutes.

The conditions imposed by Mr. Jacobs are that a competing car shall carry four persons throughout the run, and shall cost not more than $2,650. His record was made with a two-cylinder, 18-horsepower Rambler surrey and is 6 hours and 18 minutes less than any previous record.

G. A. Boyer, without reference to the cost of the car or the trophy, will try to cut Jacobs' time to 25 hours, using a Pope-Toledo touring car. The success of Jacobs' trial has had the effect of increasing the popularity of the San Francisco-Los Angeles route, and a movement is on foot for a systematic improvement of the roads in several counties along the way.

TO IMPROVE JERSEY ROADWAY

Will Pave Rumson Road from Little Silver to Seabright.

Special Correspondence.

ASBURY PARK, N. J., July 15.—The most important business transacted by the Monmouth County Board of Chosen Freeholders as its meeting this week had to do directly with the comfort and pleasure of automobilists. A resolution to pave the Rumson Road with stone from Little Silver to Seabright, at a cost of $60,000, was adopted. The work will be done next year, and part of the expense will be borne by the residents whose homes line the thoroughfare from end to end.

The Rumson Road is considered by many to be the most beautiful drive in New Jersey. It has been in need of attention from the road supervisor for some time, and considerable pressure has been brought to bear upon the freeholders to have them start repairs upon it. However, it was hardly expected that the body would vote to expend such a large sum on the work as $60,000. The road is about six miles long, and so the cost of the improvement will be about $10,000 a mile.

CAPE MAY RACE PROGRAM.

Cape May, N. J., beach, the latest addition to the growing list of beaches suitable for the speeding of automobiles, is to make its debut in the automobile racing on Saturday, July 22, when a program of races, all at one mile, will be run off. Greater distances are not permitted by the limits of the beach; but for the mile the going is excellent. The most spectacular event of the day will be Walter Christie's attempt to send his four-wheel driven 180-horsepower machine over the mile in better than world's record time; this car will also attack the kilometer record.

The other events consist of mile races of stock cars driven by owners, there being separate classes for cars of 10, 20, 30 and 40 horsepower; for cars of 20, 30 and 40 horsepower driven by owners or chauffeurs; and three special races, one for 40-horsepower Wintons, one for 40-horsepower Pope-Toledos and the third for 40-horsepower Packards. In the three last named events the cars are to be driven by their owners. In fact, it is the desire of the promoters to encourage racing by owners, and for this reason owners must drive in all except three events, and even in these three they may drive if they desire. In addition to the regular program an effot is being made to arrange for special events which will add to the interest in the day's racing.

The races, which are to be held under the official sanction and under the racing rules of the A. A. A., are promoted by the Cape May Automobile Club, of which Senator Lewis M. Cresse is president, A. H. Chadbourne vice-president, J. A. Depew treasurer, and J. Hiscock, secretary. The club headquarters are at 1438 South Penn Square, Philadelphia. The prizes will in all cases be cups. As Walter Christie's performances, whatever they may be, will be records for the Cape May beach, special cups will be awarded him. A trophy valued at $1,000 is to be awarded to the car making the best mile on the beach during the season, and a $500 trophy is offered for the best kilometer mark of the summer.

Timing at Saturday's meet will be done by means of A. L. McMurtry's electrical apparatus, and Mr. McMurtry, with a corps of assistants will operate the instruments.

EXCITING CONTESTS AT ST. PAUL TRACK.

Kiser Wins $2,500 Purse, but is Protested by Webb Jay—Winton Bullet, the Veteran, Shows Astonishing Speed—No Records Broken, but Excellent Sport Afforded.

ST. PAUL, July 15.—The Chicago-St. Paul automobile run is over. The entertainment of the delegates in the Twin Cities closed with races at the Hamline track Monday and excursions about the pleasure resorts of St. Paul and Minneapolis during the next few days. Many of the tourists left for Chicago Monday night, some by rail and others by automobile. Several remained in the Twin Cities during most of the week, visiting various points of interest.

The Minneapolis automobile club had planned to entertain the tourists Monday, but those who had made the trip from Chicago to St. Paul through the mud were anxious to get home, and the entertainment was given up. Many of the tourists, however, were entertained privately by members of the Minneapolis club.

Webb Jay, who drove the "Whistling Billy," as the White steam racer has been nicknamed, protested the race for $2,500, which was won by Kiser in the Winton *Bullet*. While the St. Paul A. C. has not announced the grounds upon which the protest was made, it is understood that it is based on the fact that neither Kiser, the winner, nor Oldfield had reversing gears on their cars. Reversing gears are demanded by the A. A. A. track racing rules, which took effect just in time to effect the two cars protested.

Webb Jay narrowly missed winning the final heat for the $2,500 purse. Had not his machine got out of steam toward the end of the race, he might have finished first. Kiser, Jay and Oldfield made a flying start under the wire almost simultaneously. Kiser held the inside in passing, but Oldfield broke in at the first turn and got the lead, closely pursued by Jay in the White steamer. Kiser gained on Oldfield, however, and soon passed him. Oldfield made a strenuous effort to gain the lead again, but failed, and from that point it was a race between Jay and Kiser.

The Winton maintained the lead for two laps. Jay made rapid gains on the long stretches of the track, but could not make as close cuts around the corner as his opponent. Jay passed Kiser at the end of the second lap and held the lead until the second turn of the third mile. His steam pressure fell, however, and the race was won by Kiser in 4:51. Oldfield finished in 5:10 2-5.

The Hamline track is not built for automobile racing, and no track records were broken. The corners are too sharp and the outside portion of the track is not sufficiently elevated. Oldfield and Kiser each made an attempt the last day to break the mile record for a circular track. Oldfield made it in 55 flat and Kiser in 56 3-4.

Following are the summaries of the two days' racing:

SATURDAY'S RACES.

Novelty race, three miles, cars with three passengers, all to dismount and engines to be stopped at end of each mile.—C. H. Burman, 30-horsepower Peerless, 1st; A. C. Johnson, 16-horsepower White, 2d; E. A. Thacker, 24-horsepower Stoddard-Dayton, 3d. Time, 5:48.

Five-mile race, Twin City club championship.—Earl Kiser, 60-horsepower Winton *Bullet*, 1st; Charles Meyers, 60-horsepower F I. A. T., 2d. Time, 5:11.

This race was protested by Watson.

One-mile dash, flying start, against circular track record.—Barney Oldfield, 60-horsepower Peerless *Green Dragon*. Time, 0:56 4-5.

Five-mile handicap, for cars taking part in endurance run.—E. F. Schueffler, 18-horsepower Jackson, 50 seconds, 1st; Dr. A. C. Lee, 30-horsepower Pope-Toledo (scratch), 2d; Arthur Gardner, 18-horsepower Rambler, 40 seconds, 3d. Time, 8:28 2-5.

Manufacturers' and Dealers' race, for stripped stock cars.—Victor Stromquist, 40-horsepower Thomas Flyer, 1st; H. E. Pence, 30-horsepower Pope-Toledo, 2d. Time, 6:10.

Three-mile race for $1,000 for cars under 1,432 pounds.—J. Simpson, 16-horsepower Marion, 1st; Charles P. Joy, 14-horsepower Franklin, 2d. Time, 4:35.

Tri-City club championship—New York, Chicago and St. Paul clubs, ten miles.—Earl Kiser, St. Paul club, 60-horsepower Winton *Bullet*, 1st; Webb Jay, Chicago club, 24-horspower White steamer, 2d. Time, Kiser, 10:33; Jay, 10:45.

Invitation race, $1,000, five miles.—Charles Meyers, 24-horsepower F. I. A. T. *Junior*, 1st; Victor Stromquist, 40-horsepower Thomas, 2d. Earl Kiser finished first in 5:35, but was protested by E. R. Hollender. The protest was allowed.

Five miles, flying start, against circular track record.—Barney Oldfield, in 60-horsepower Peerless *Green Dragon*. Time, 4:43.

Two-mile open handicap, for amateurs.—Victor Stromquist, 40-horsepower Thomas, 15 seconds, 1st; Charles Meyers, 60-horsepower F. I. A. T. (scratch), 2d. Time, 3:44; 2d, 2:51.

Open race, five miles, $2,500 purse.—First heat, Earl Kiser, 60-horsepower Winton *Bullet*, 1st; Barney Oldfield, 60-horsepower Peerless *Green Dragon*, 2d. Time, Kiser, 4:44 3-5; Oldfield, 4:47.

$2,500 open race.—Second heat, Webb Jay, 24-horsepower White steamer, 1st; Louis Chevrolet, 90-horsepower F. I. A. T., 2d. Time, Jay, 4:46 1-5; Chevrolet, 5:03 1-5.

MONDAY'S RACES.

Novelty race, for women with escorts, women driving; two miles.—Mrs. F. Jesewick, of St. Paul, Columbia, 1st; Mrs. C. A. Fawkes, of Minneapolis, Rambler, 2d; Miss Andrews, of Chicago, Reo, 3d. Time, 3:24 1-5.

Three-mile invitation race for Minnesota cars.—Charles Joy, Franklin, 1st; Time, 4:13 3-5.

Final heat Manufacturers' and Dealers'; five miles.—Charles Joy, Franklin, 1st; Harry Pence, 2d. Time, 4:07.

Final heat, for cars under 1,432 pounds; three miles.—C. A. Coey, 1st; Harry Pence, 2d. Time, 3:36.

Final Tri-City championship, five miles.—St. Paul entry, driven by Earl Kiser, 1st; Chevrolet, 2d. Time, 4:58 1-2.

Five-mile handicap for touring cars carrying three passengers.—C. P. Joy, Pierce, 1st; Barney Oldfield, 2d. Time, 7: 08 1-2.

Three-mile handicap for touring cars.—C. H. Burnham, 1st; J. K. McCullough, 2d. Time, 5:09.

Invitation race, five miles.—Earl Kiser, 1st; Victor Stromquist, 2d. Time, 5:22 1-5.

Five-mile open handicap for stripped cars.—A. D. Huffan, 1st; Victor Stromquist, 2d. Time, 7:00.

Five-mile open.—Third heat—Barney Oldfield, *Green Dragon*, 1st; Louis Chevrolet, 2d. Time, 5:09 1-5. Final heat—Earl Kiser, 1st; Barney Oldfield, 2nd. Jay did not finish. Time, 4:51.

Special event, mile dash, flying start.—Barney Oldfield, 0:55; Earl Kiser, 0:56 4-5.

Jay, White. *Chevrolet, Fiat.* *Kiser, Winton Bullet.*

KISER IN WINTON BULLET LEADING FIAT AND WHITE STEAMER AT ST. PAUL RACES.

POUGHKEEPSIE RACES.

Seven Events to Be Contested on Last Day of Dutchess County Fair.

An automobile race meet will be held at Poughkeepsie, N. Y., on Friday, September 29, the last day of the Poughkeepsie Fair, and will be a national circuit meet with a national circuit championship race at five miles, open to all, as the opening event. Seven races are announced as follows:

Five miles national circuit championship, open to all. First prize, $150 cash or plate; second prize, $50, cash or plate.

Five mile Poughkeepsie handicap. Open to all classes. First prize silver trophy, value $100; second prize, silver trophy, value $50.

Three mile Dutchess handicap, open to cars owned in Dutchess County, whose owners have resided in the country for at least thirty days. Prize, silver trophy, value $60.

Three miles tourists novelty race, for fully-equipped touring cars of 40-horsepower and under, carrying three passengers. Cars to line up with dead engines. At the starter's signal engines are to be started, and operators and passengers to take their places. Cars to be stopped and unloaded at the end of the second mile. First prize, silver trophy, value $100. Second prize, silver trophy, value $50.

Quarter-mile obstacle race, each car to have one trial. Prize, silver trophy, value $60.

One mile open to gasoline stock runabouts carrying two passengers costing $1,000 or less; regular equipment. Prize, silver trophy, value $50.

The voltage of a battery, multiplied by amperage, gives the number of watts available.

ROCHESTER A. C. ELECTION.

Officers and Governors Named at Annual Meeting July 13.

Special Correspondence.

ROCHESTER, N. Y., July 15.—The fifth annual meeting of the Rochester Automobile Club was held Thursday evening, July 13, at the club quarters, 25 Plymouth avenue.

This meeting was scheduled to take place in March, but was deferred until the new quarters had been completed.

President H. S. Woodworth presided, and in the course of his remarks stated that few people had any idea of the size of the club and the benefits to be derived from being a member. He also spoke of the legislative work accomplished, and of the hard fight made to prevent legislation detrimental to the interests of the club members.

It was announced that a special attorney had been hired, in addition to the regular attorney of the club, to look after the interests of members arrested. Charles A. Bostwick is the attorney. Any member who is arrested will notify him and bail will be furnished. An investigation will be made by the club, and if it is found that the member is guilty of the offense charged he will be left to fight his own battle, but if he is innocent the club will see him through. Copies of the automobile law are to be distributed among the policemen in order that some of the unnecessary inconveniences to which the members have been subjected will be stopped.

There was some discussion as to the bad conditions of the roads in this vicinity, and also concerning the lack of observance of the rules of the road. Many instances were cited where persons displayed a lack of knowledge of these rules, and also where policemen who are supposed to regulate street traffic are not well posted in their duties.

Secretary C. F. Garfield's report showed the club to be in a most flourishing condition. The present membership is 159, a gain of 126 in the year. There is a balance in the treasury and the club is in good financial condition.

The annual election followed the report of the secretary, and the following officers were elected: President, H. S. Woodworth; vice-president and attorney, John A. Barhite; treasurer, C. F. Garfield; secretary, Frederick H. Clum. Board of Governors: F. H. Bettys, George G. Foster, Griff D. Palmer, F. E. Mason, Lee Richmond, A. J. Rockwood, Harry G. Strong, John W. Bingeman and Austin F. Crittenden. All of the governors except the last four were re-elected.

The Rochester Automobile Club has accomplished much good in this section. It has marked all the roads in this vicinity, and there are now more than one hundred road signs up in Wayne, Monroe and Genesee counties.

OFFICERS SHIRKED THEIR DUTIES.

The New York Motor Club, which began a promising career last winter, has been threatened with disastrous internal strife through the objection of a number of the members to what was said to be a lack of interest in the affairs of the organization on the part of a number of the officers; and as a result the first vice-president and the secretary have tendered their resignations. The Orphans' Day outing is said to have marked the start of the trouble, as the officers in question failed to join with the other club members and officers in making the affair a success. In addition, it was found impossible to get a quorum at any directors' meeting, owing to the fact that the secretary's notices were ignored. The more active element feeling that the club's interests would suffer severely if this was allowed to continue, consultations were held and as a result letters were sent to the delinquents, urging prompt action. This seems to have had the desired effect, and the last reports are that the officers, including those whose course was criticised, are consulting as to the best means of maintaining interest in club matters. This is what the more energetic members desired, and therefore it is thought that the breach will be healed without further difficulty.

CAPE MAY CLUB MEETING.

Permanent Officers Elected — Series of Race Meets Planned.

Special Correspondence.

PHILADELPHIA, July 17.—The permanent organization of the Cape May Automoble Club was effected at the Bellevue-Stratford, in this city, last week by the election of State Senator Lewis M. Cresse, of Cape May County, as president and A. H. Chadbourne, of this city, and a prominent member of the Automobile Club of Philadelphia, as vice-president. The official list was completed by the selection of J. A. Depew as treasurer and J. Hiscock as secretary. The Board of Governors is composed of Mayor Thomas W. Millett, of Cape May; J. N. Wilkins, Jr., J. A. Depew, President Isaac Starr, Jr., of the A. C. of P.; Charles J. Swain, J. Fred Betz, 3d, Lawrence McCormick, F. M. Johnson and Courtland D. Cramp.

The first race meet and time trials of the club, which will be held July 22, were thoroughly discussed and it was announced that, besides a series of races for touring cars, with amateur and professional drivers, Walter Christie would endeavor to break the world's records for the mile and kilometer in his *Blue Flyer*.

At least four similar events will be held on the Cape May beach course before the close of the season.

GRAND RAPIDS CLUB'S SCHEDULE.

Special Correspondence.

GRAND RAPIDS, July 14.—The Grand Rapids Automobile Club is planning a series of seventeen tours for this summer. The runs will be held on Saturdays and Sundays until October 28, and will close with a masked ball at the Lakeside Club. The autoists will be masked on the last run and the machines will be decorated with flowers and Japanese lanterns. The tours will take in many small towns within a radius of sixty miles. The longest run scheduled will be on September 2, from this city to Milwaukee, crossing Lake Michigan to Chicago by boat. From Chicago the Sheridan road to Milwaukee will be used.

A feature of this season's affairs will be the flower parade on July 22. The drivers, with their machines covered with flowers, will make a run about the city, ending at the Kent Country Club, where supper will be served.

The tours were arranged by a committee composed of George F. Sinclair, Dr. H. J. Innes and R. T. Tietsort.

GRAND RAPIDS CLUB ELECTION.

GRAND RAPIDS, MICH., July 15.—The Grand Rapids Automobile Club has re-elected the following officers for the ensuing year:

President, Dr. Perry Schurtz; vice-president, A. A. Barber; secretary, Lyman W. Welch, and treasurer, N. Fred Avery.

Owing to the excellent condition of the club treasury, there will be no dues during the coming year.

The first run of the club was held last Sunday. About fifty machines were in line, and the trip was made to Cascade Springs. The run was captained by Dr. J. H. Innes. President Perry Schurtz, however, looks with disfavor upon the schedule for Sunday tours, and says he will call a meeting of the board of directors soon to revise the list of runs which has been made.

NEWS NOTES OF THE CLUBS.

MUSKEGON, MICH.—The Muskegon Motorcycle Club has elected the following officers for the ensuing year: President, Dr. C. J. Dove; treasurer, Paul Stamsen; secretary, J. Spencer Locke; captain, Milo Pray. A motorcyle race meeting has been scheduled by the club for Labor Day and motorcyclists from all over the State are expected to participate.

LEXINGTON, KY.—The Blue Grass Automobile Club has been formed here, and the following officers elected: J. T. Tunis, president; Roger Smith, vice-president, and T. B. Dewhurst, secretary. The club begins life under most promising circumstances, and carries on its charter list the majority of the machine owners of the city.

KANSAS CITY, MO.—At a meeting on June 14 the Kansas City A. C. elected the following officers for the ensuing year: H. N. Strait, president; G. L. Henderson, first vice-president; C. V. Purcell, second vice-president; H. G. Blakeley, secretary-treasurer; C. F. Ettwein, B. E. Nace, E. M. Hetherington, F. C. Merrill, J. E. Bernheimer, D. F. Piazzek, Ferd. Heim, H. C. Fowler and H. W. Jacques, directors.

BUFFALO.—President A. H. Knoll and Secretary Dai H. Lewis, of the A. C. of Buffalo, recently made a trip from Buffalo to Fredonia, for the purpose of locating the dangerous places and steep hills on this popular auto route. It is the intention of the club to have warning signs placed along the roads leading from Buffalo to Fredonia, indicating that the passing automobilist is in the vicinity of a dangerous hill, and advising him to reduce his speed. The two officials who made the trip marked the places where sign posts will be erected in the near future.

At any rate, the haughty automobile finds more than its match when it tries to "butt" a railroad train off the track.—*Paris (Ill.) Beacon.*

Frank Klassen and P. A. Martens started for a drive to Buhler in their automobile. They got as far as Turkey creek, where the mud prevented farther progress.—*Moundridge (Kan.) Journal.*

THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, JULY 27, 1905—CHICAGO No. 4

GLIDDEN TOUR FINISHES IN NEW YORK.

BY HARRY W. PERRY.

TWENTY-SIX of the thirty-two pleasure automobiles that departed from New York on July 11, in competition for the Charles J. Glidden touring trophy, finished the run in good time last Saturday evening at the Plaza, New York City. They had been driven over 870 miles of roads of all sorts, from magnificent macadam boulevards to exceedingly dangerous mountain roads, and in eight running days had traversed twice each the states of New York, Connecticut, Massachusetts and New Hampshire. From every point of view the tour was the most successful competition of the sort ever held in America; the cars made a better showing mechanically than ever before proportionately to the distance traveled, showed greater endurance and reliability over bad roads, and the contestants and passengers enjoyed the tour and the social intercourse more than ever before.

STANLEY CAR MAKING FASTEST TIME FOR A STEAMER UP MT. WASHINGTON DURING GLIDDEN TOURISTS' VISIT.

The purpose of the tour, said Mr. Glidden, donor of the handsome trophy which is yet to be awarded, at Yonkers, at the conclusion of the tour proper Saturday afternoon, was to determine what an automobile could do, not in the matter of speed, but as a pleasure vehicle for touring over the roads over long distances of diversified country, and, from the excellent showing made by a large proportion of the cars, he thought a difficult problem lay before the tour committee to decide to whom to award the trophy. A meeting of the committee is to be held for this purpose the first week in August, either in Boston or New York, when the committee will go very thoroughly over the record cards turned in by the contestants at the conclusion of each day's run and over other information upon which credit points are to be given, such as weight in touring condition, number of passengers

NO TROUBLE ABOUT ROOM TO PASS—A ROADSIDE INCIDENT ON RETURN TRIP OF GLIDDEN TOURISTS.

carried, cost and power of car, and hill-climbing ability. If after the process of elimination has been carried to its ultimate degree there are still several cars showing not only perfect scores, but possessing an equal number of credit points, the final decision will be made upon the votes cast by the entrants at the conclusion of the tour. Each contestant filed with his last daily report card a ballot for three cars in the tour which he recommended to the consideration of the tour committee.

As half a dozen or more cars appear to have made clean scores so far as the deed of gift and the conditions for this year's contest are concerned, there is a great deal of speculation among the tourists, as well as among outsiders, as to who will get the trophy. Besides the trophy, certificates are to be given to all contestants who made clean scores.

The finish of the tour was made spectacular by a request issued at Lenox, Mass., on the last night's stop, for all of the tourists to wait at Yonkers, N. Y., upon arrival the following day, until 4 p. m., when all the machines that had assembled would parade into New York City in line. Failure to comply with the request rendered a driver subject to disqualification. By 4 o'clock twenty of the cars had arrived at Yonkers, after a run of 130 miles since 6 a. m., but the first two arirvals, Walter White and W. N. Epping, in White steamers, went on through to New York without waiting for the others.

From Yonkers the other eighteen cars ran into the city by way of Riverdale Avenue, Lafayette Boulevard and Riverside Drive, the dust-covered and travel-worn machines and passengers attracting a great deal of attention in the metropolis. Arriving at the Plaza at 4.45 p. m., the machines were formed into a group to be photographed before dispersing. In the group were the following entries: George O. Draper, 22-horsepower Packard; Edward H. Woods, 18-horsepower Napier; Robert Lee Morrell, 40-horsepower Locomobile; Augustus Post, 15-horsepower White; W. C. Temple, 40-horsepower Pierce Great Arrow; George H. Tyrrell, 15-horsepower White; Albert L. Pope, 45-horsepower Pope-Toledo; Percy P. Pierce, 40-horsepower Pierce Great Arrow; E. A. Gilmore, 18-horsepower Rambler; Charles E. Walker, 18-horsepower Pope-Hartford; Harold L. Pope, 12-horsepower Pope-Tribune; A. W. Church, 30-35-horsepower Decauville; C. W. Kelsey, 16-horsepower Maxwell; E. H. Cutler, 14-15-horsepower Knox; R. E. Olds, 16-horsepower Reo; R. M. Owen, 16-horsepower Reo; J. D. Maxwell, 8-horsepower Maxwell; Ralph Coburn, 16-horsepower Maxwell.

The last day's run on the return trip was not only the longest, covering a distance of approximately 150 miles, but was also one of the hardest owing to the steep, narrow, rough and tortuous nature of the roads between Poughkeepsie and Peekskill and the clouds of dust raised. Added to these conditions was a tiresome wait at Yonkers by the early arrivals for the more leisurely tourists to get in, so that as many as possible might run into New York City in a string. Fortunately the weather was ideal for touring, bright but with occasional clouds, and cool, with a light northwest breeze blowing.

Friday night had been spent at the Aspinwall Hotel in Lenox, Mass., a change having been made in the route, as better accommodations were to be secured in Lenox than in Pittsfield, five miles north. So Pittsfield was left entirely off the route. A large number of the tourists secured early starts Saturday morning, at 6 a. m. or as soon thereafter as possible. The spirits and good nature of the participants ran high with the ozone in the fresh morning air and the knowledge that they were on the home stretch. So they were in mood to enjoy the beauties of the fashionable summer resort of Lenox, with its beautifully trimmed lawns, well pruned foliage trees, palatial residences, mountainous scenery and superior macadamized roads. The Berkshire Hills, in the heart of which Lenox is located, are famed for their natural beauty and the excellent roads through them. They were a revelation to such of the tourists as had never before toured there.

An incident that happened early in the day showed one of the most unexpected dangers of touring in parties and especially of fast driving. Leaving Lakeville, thirty-three miles from Lenox, C. W. Kelsey overtook Augustus Post in his White and followed along behind for some distance, gradually closing the space between the cars. On a short descent, with a fork and right hand turn near the bottom, the speed became high and the overtaking machine was within fifty feet of Mr. Post's car when the latter made the turn onto the right fork and slowed down almost to a stop, at the same time running wide on the turn in such way as to prevent Kelsey from passing on either side without running off the road. The brakes were applied promptly, but it was impossible to arrest the momentum sufficiently to bring the gasolene car to a stop within the necessary distance. Kelsey steered left to the outside of the turn enough to clear the steamer, and in doing so ran off the edge of the road onto the grass, with a tree directly ahead. He succeeded in cutting a short enough turn to avoid hitting the front of the car against the tree, which was struck a glancing blow by the left rear mud guard. Fortunately, the car did not overturn, and was driven up onto the road again without stopping. The only harm done was the bending of the fender. At Yonkers Mr. Post afterward expressed regret over the occurrence, explaining that he supposed he had taken the wrong turn and that Kelsey would continue on straight instead of making the same turn.

Another incident of less serious aspect and having a semi-humorous side occurred south of Fishkill. While driving along a narrow earth road with bushes on either side, Kelsey met a man driving a single horse hitched to a light wagon that was empty. Each pulled out to his proper side of the road sufficiently to clear the other, but just as the automobile came opposite to the wagon the front wheels struck a large

stone that had not been noticed, and the impact threw the front end of the car a few inches over to the left, just enough to cause the left front wheel fender to catch under one of the back spokes of the rear wheel of the wagon. This lifted the wheel about fifteen inches off of the road, and set it spinning like a flywheel. The jolt pitched the driver off the seat on the opposite side of the road, but luckily he landed on his feet and was able to catch the seat as it came down and pull it back into place. The horse did not attempt to run away, and Kelsey, who had set the brakes to stop, seeing that no harm had been done, proceeded on his way. The driver of the wagon, evidently not knowing the real cause of the affair, looked angry but said nothing.

Although the route for the day followed the Hudson River from Poughkeepsie all the way down to New York City, it was only at Fishkill that the tourists got a really good view of the majestic river, with Newburg on the opposite side and Storm King Mountain towering above the river. Most of the way the road was so far back from the edge of the canyon through which the river runs and was bordered by such heavy woods that all view of the water was shut off. The roads and roadside scenery throughout the day were most interesting, constantly changing in character, sometimes being excellent macadam roadway with wide surface and easy sweeping curves, as that winding through a deep, shady and cool ravine at Garrisons, with a grand private estate on one side, and again, as on the two-mile stretch intervening between that road, where it goes down to Highlands Station on the very edge of the river, and Peekskill, which was the roughest, narrowest and crookedest sort of uphill and downhill mountain road, with many big thank-you-ma'ams and almost as difficult to negotiate as the descent of Mount Agassiz on the first day out from Bretton Woods.

As far as can be ascertained, no accidents occurred on this bad piece of going, but a telegram received by the officials upon arrival in New York from H. W. Whipple, reported that Mrs. Whipple had been thrown out of the front seat of the Peerless touring car that her husband was driving by a double jounce caused by two thank-you-ma'ams coming unexpectedly in quick succession. It was learned later that as she fell she struck on her head, but examination by a physician in Sharon showed that she was not much injured beyond the shock. Mr. Whipple stayed behind to bring Mrs. Whipple into the city by train, sending his car ahead in charge of his chauffeur in an attempt to have it finish the tour within the official time.

Another curious accident of the day, due to road conditions, happened to J. D. Maxwell, driving his 8-horsepower Maxwell runabout, the smallest and lowest powered machine in the tour. Four miles from Sharon he was overtaken by W. C. Temple in his big 40-horsepower Pierce Great Arrow. Mr. Temple's chauffeur, who was driving, blew his horn and Maxwell obligingly gave him half the road to pass—a favor, by the way, not always extended by Mr. Temple's chauffeur to others in the tour. When Mr. Maxwell pulled out he was at the top of a slight grade and did not notice that the planking over a culvert at the bottom was very narrow, as its ends were concealed by tall grass. The Pierce crossed without trouble, but the runabout was crowded so much that its two right hand wheels ran off the planking and dropped into the culvert. The front wheel caught against the bank and brought the little car to a sudden stop, bending the axle several inches out of line from the spring block. The same shock also turned up the rear spring shackle on the left side. Neither Mr. Maxwell nor his companion, J. Ross, was thrown out or hurt, but after that the runabout steered badly until another accident strangely corrected the fault.

The second accident, which was much less serious, occurred on the road leading out of Poughkeepsie. Workmen were making a new macadam road alongside of a trolley line, and the only place where vehicles could get through was over the ties of the street railroad. The rails projected their full height above the ties and road surface and the left wheel of the runabout refused to mount the rail, the shock bending the spindle just enough so that afterward there was no difficulty about steering. But it was a cross-eyed looking runabout that ran into New York that evening.

Another event that added to the day's unusually large chapter of troubles was the grinding up of a cone and the balls in one

ARRIVAL OF THE TOURISTS AT THE PLAZA, NEW YORK CITY, UPON COMPLETION OF THE FIRST GLIDDEN TOUR.
(Central Park in the Background.)

ALBERT L. POPE'S 45 H.P. POPE-TOLEDO TOURING CAR IN THE GLIDDEN TOUR.

of the wheel bearings on W. C. Temple's car. At first it was reported that the wheel had broken or come off, but this was denied by the driver upon inquiry at Yonkers. The injury to the bearing, however, caused the rear right wheel to wobble badly, and to remove as much weight as possible from the axle Mr. and Mrs. Temple finished the journey by train, Mr. Post having taken them in his car to Garrisons, where they had dinner together. The machine arrived in Yonkers at 2:30 P. M.

The first arrivals at Yonkers were Walter C. White and W. N. Epping, both in White steamers, who passed through at 1:12 P. M., without waiting to come into New York with the rest. E. A. Gilmore was third, at 12:20, in his Rambler; E. H. Woods fourth in his Napier; A. W. Church fifth in his Decauville; J. D. Maxwell sixth in his runabout at 1 o'clock; C. W. Kelsey seventh in the 16-horsepower Maxwell, at 1:12; G. O. Draper eighth in the 22-horsepower Packard single-seat car, at 1:33 P. M.; R. M. Owen ninth, at 1:34, in his Reo; Albert L. Pope's 45-horsepower Pope-Toledo tenth, at 1:40, and S. B. Stevens eleventh in his 15-20-horsepower Darracq. Harold Pope, who finished at 2:30 P. M. simultaneously with Mr. Temple's car, had a broken fender rod on his Pope-Tribune and a small leak in the gasoline tank.

Percy Pierce, Augustus Post, R. L. Morrell, Julius Mehlig, Ralph Coburn and one or two others who consistently stuck to a moderate touring pace throughout the contest arrived after 3:30 at Yonkers.

Harlan Whipple's car reached New York after the closing hour of the control, J. C. Kerrison finished late, but inside the time limit, and C. J. Edwards reached New York among the tailenders, despite the damage to his steering gear caused by the upsetting of his big car on the bridge at Conway on the last day of the up trip.

Mrs. Cuneo was among the unfortunate ones who did not finish inside the time limit, owing to serious engine trouble that developed on Friday's run from Worcester to Lenox and prevented her reaching the Aspinwall Hotel until 2 o'clock Saturday morning.

Only four cars of the thirty-two that started from New York actually failed to finish, and of these one was withdrawn because of the illness of Mrs. Hugh Thomas, and another because William A. Lamson wished to remain behind and tour longer in eastern Massachusetts. The only cars put out of the tour by mechanical troubles were Sydney Hutchinson's 50-horsepower Panhard and Mrs. J. N. Cuneo's White steamer.

Worcester to Lenox.

A few minutes before 9 o'clock Friday morning, July 21, the six tourists upon whom summonses had been served the night before walked over from the Bay State House to the District Court building and ascended to Judge Utley's courtroom, accompanied by about twenty-five other tourists. After two "drunks" had been disposed of quickly, the names of Carl Page, W. C. Temple E. H. Fitch, R. E. Olds, R. L. Morrell and Mrs. J. N. Cuneo were called by the clerk, and the "convicts" stood up before the rail and were sworn. The charge was read, and Attorney Daniel Gay, of Worcester, made a plea for clemency in an undertone that few could hear. He called the court's attention to the fact that the visitors were guests of the state and the city of Worcester, and for that reason were entitled to especial consideration, particularly since they were unfamiliar with the local regulations and were given no warning to slow down when entering the city.

His arguments carried no weight with the court, whose mind evidently had been made up before the convening of court. The judge said, in part:

"I don't recognize any difference between these people and anybody else. They are not my guests. They come here, knowing the law, and they must obey it. They come through here flaunting their wealth and defying the honest citizens of the town that makes the complaint. I am not interested in selling automobiles or in racing them. If these people want to race, let them go elsewhere. If they want to come to Massachusetts they must behave themselves and obey the law. Unless they do the legislature will restore the jail sentence for speeding on the streets, which it unwisely, in my opinion, recently removed. Some of these people here ought to be in jail, I think. Fifteen dollars each."

The fines were paid without protest, as the tourists were anxious to get started on the day's trip, and, believing that the court was prejudiced, realized the futility of arguing the case and requiring proof of the transgression of the law. Two of the persons for whom summonses had been prepared were not present. They were C. J. Edwards, who had been unable to keep up with the body of the tourists because of the damage done to his steering gear by the accident at the bridge in Conway, and Benjamin Briscoe, who had quit the tour at Hartford on the first day, and was not driving his car when it passed through Leicester.

Long before the visit to court the tourists' cars had been lined up in front of the Bay State House, close together, with backs to the curb, ready for a start as soon as the cases were disposed of. When the "convicts" and their friends put in their appearance there was a great tooting of automobile horns and of paper fish horns that had been thrown into every car. Each machine also had its lamps draped with black crepe.

Quickly the machines departed, moving slowly in line through the streets to the Worcester limits, where a band of a dozen pieces that had been hired for the occasion was in waiting. Each man of the band was given a seat in a car, and the procession moved on to the Leicester Inn, where the band dismounted and walked ahead, playing funeral marches, "There Are Fifteen Dollars in My Inside Pocket," "Over the Hills to the Poorhouse" and other dismal airs in slow time, while the cars followed behind three abreast, moving as slowly as the band marched. In front of a shop where Constable Quinn, who set the trap for the tourists, and took evident delight in serving the warrants, works, when not trapping autoists or refereeing cock fights, the band came to a halt and played "Auld Lang Syne," while the passengers in the thirty cars removed their hats and joined in the chorus.

Hundreds of the townspeople looked on at the unusual sight and laughed at the implied odium heaped upon the heads of the officials responsible for the "hold-up." The constable, however, declined to be enticed from his retreat, wherever it was, and the band was dismissed, the crepe torn from the cars and scattered on the street as souvenirs of the last visit that an organized tour or endurance run will ever make to Leicester or Worcester county. Then, with

a last derisive tooting of horns, the automobilists drove on to the town limits, pushed in their high gears and soon forgot Leicester in the enjoyment of a brisk but dusty ride through the cool morning air through Spencer and East Brookfield, past pretty Lake Wickaboag to West Warren.

From Warren, through Palmer and North Wilbraham to Springfield the roads were the worst on the 240-mile course between Boston and New York, being narrow, winding, very sandy and having deep ruts, with trees and low brush bordering the road so closely in some places that to pass another vehicle was almost impossible. A large number of cars were stopped at Springfield, where their passengers took luncheon at noon, the start from Worcester having been made at 9.25 A.M., and the parade through Leicester having occupied the better part of an hour.

From Worcester to Springfield the return course coincided with the route of Wednesday of the preceding week, or the second day of the tour out of New York. At Springfield it struck off westwardly, and soon after passing Westfield the tourists entered the Berkshire Hills section, and began again to enjoy the beauties of mountain scenery. From Westfield to Huntington they skirted the south bank of a branch of the Connecticut river on an excellent macadamized state road, the only drawback to the full enjoyment of which was the fact that a new interurban electric railroad was under construction all the way on the left side of the road, a distance of thirteen miles. Teams and building material and rocks that were being removed from the roadbed made driving somewhat annoying. From Huntington the road became sandy, and near Chester this changed to a mountain earth road, which became metamorphosed into a wide and hard macadam road for two miles, leading into Chester and for several miles beyond.

Near West Becket another joke was played upon the unsuspecting contestants by the tour committee. The guide book said, "Climb Morey Hill (1,846 feet elevation), passing Becket P. O., and descend to West Becket." Few suspected the full meaning of these simple instructions, but they found them sufficiently difficult to fulfill, since in places the grade was more than 25 per cent., with an ordinary dirt surface, rough and loose, and frequent thank-you-ma'ams. The worst of it was that Mr. Glidden had posted himself on the very steepest pitch, half way up the hill to make observations for the use of the committee in deciding the awarding of the trophy. A press photographer had also planted himself on the hill to make permanent and indisputable records of cars that had to be pushed up the hill by their passengers or hauled up by a team that a farmer with an eye open to business had stationed at the base of the ascent.

When the car in which the writer was a passenger began to climb the grade the engine slowed down, and Kelsey, instantly guessing the reason and rising to the emergency, called to his assistant to "blow in the tank." While the assistant was lifting the front seat cushion and unscrewing the gasoline tank cap the car came to a momentary stop, but as soon as the gasoline was forced into the carbureter under the pressure of the air blown into the tank the engine began to pull again, and had no further difficulty in pulling the carload of four persons and four suitcases up the rest of the grade on low gear in short time.

There was no heating of the engine or boiling of the water on this or any other hill, including Mount Washington, which was climbed three times by the same double-opposed cylinder car. In fact, no water was added to that in the radiator throughout the trip nor before Kelsey, after finishing the tour at New York on the following night, started to drive on to Philadelphia without waiting to eat supper, making a total run for the day of nearly 250 miles. Though the engine is of the slow-speed type, developing its maximum power at a normal speed of 800 revolutions, it frequently on the trip turned up to 1,200 or more. Natural or thermo-syphon circulation is depended upon to keep the cylinders cool.

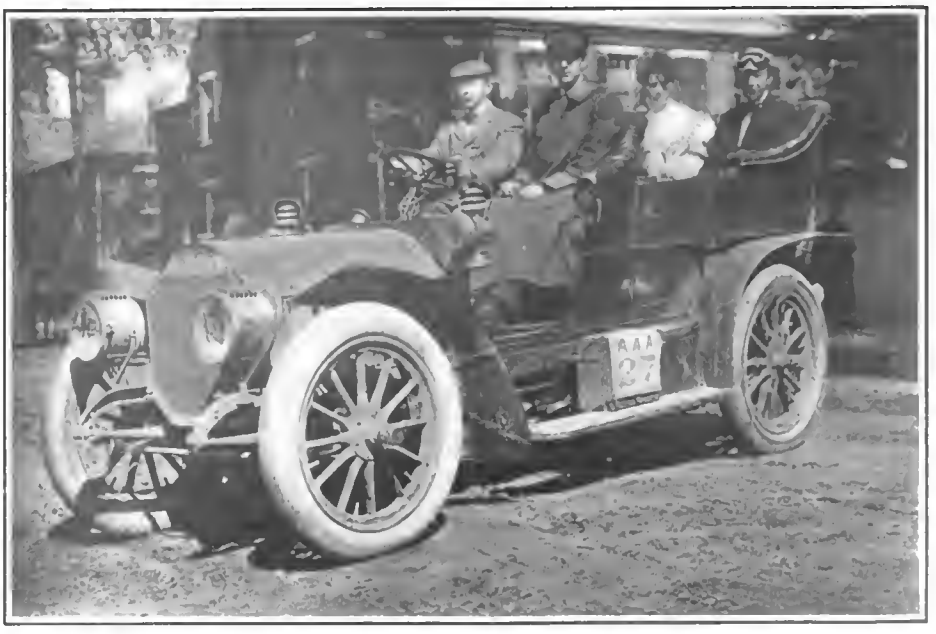
The necessity for blowing into the gasoline tank arose from the fact that about half the fuel in the tank had been used during the eighty-eight-mile run from Worcester to Morey Hill, and when the car got on the incline the liquid would not flow into the carbureter.

What difficulties others had on the hill we could not wait to see, but learned later that the light Cadillac touring car and the 18-horsepower Napier two-passenger car were helped up, and that the Pope-Hartford 18-horsepower car backed part of the way up. It was stated that evening at the Aspinwall Hotel in Lenox that it was unprecedented for so many cars to make the ascent of this particular hill with so little difficulty.

The grand view of the surrounding mountain country from the top of the hill repaid the hard work of getting up, but no sooner were the cars on the crest than they began another of the long, steep, winding and bumpy descents through the woods to West Becket. A couple of miles farther on Greenwater Pond was passed on its northern bank, and then from East Lee to Lenox there were five or six miles of excellent macadam state road.

The Napier and the three Pope cars were the first to reach the destination of the day's journey at the Aspinwall, but they had left Worcester at five or six minutes after 6 o'clock in the morning, instead of waiting with the others for the disposal of the cases against their fellow travelers. The elder Mr. Pierce took Albert L. Pope to task in a friendly way at the hotel in the evening, asking why he "shook the bunch at Worcester." E. H. Cutler, who was the fourth arrival with his Knox, finished at 2.48 P.M., closely followed by S. B. Stevens, Darracq, at 2.52; C. W. Kelsey, Maxwell, at 2.56; Walter White, White, J. D. Maxwell, Maxwell, the Packard truck, at 4.15; G. O. Draper, Packard, at 4.38, and Temple. Pierce and Post, almost together, at 5.15. Church finished on the Decauville at 5.30, with the radiator steaming, the front wheel wobbling because of a slightly bent spindle, a Weed tire chain on the left driving wheel badly worn and the tread of the tire cut to pieces by the links. The tire chain had not been needed on Thursday and Friday, and would better have been removed.

At midnight, C. J. Edwards reached the hotel, having driven his big 24-h.p. Cadillac No. 9, that had upset on the Conway bridge, 250 miles from Plymouth to Lenox since



ROBERT L. MORRELL, CHAIRMAN A. A. A. RACING BOARD, DRIVING LOCOMOBILE NO. 27.

morning. He had been laid up at Plymouth on the first day out from Bretton Woods with a broken steering gear.

Sydney Hutchinson was unable to finish the day's run with his 50-h.p. Panhard, having broken the crankshaft. Mrs. Cuneo also failed to finish within the time limit, her engine having quit business twenty miles out as a result of the damage done on the first day out of New York, when it ran into a creek at Greenwich and capsized.

Concord to Worcester.

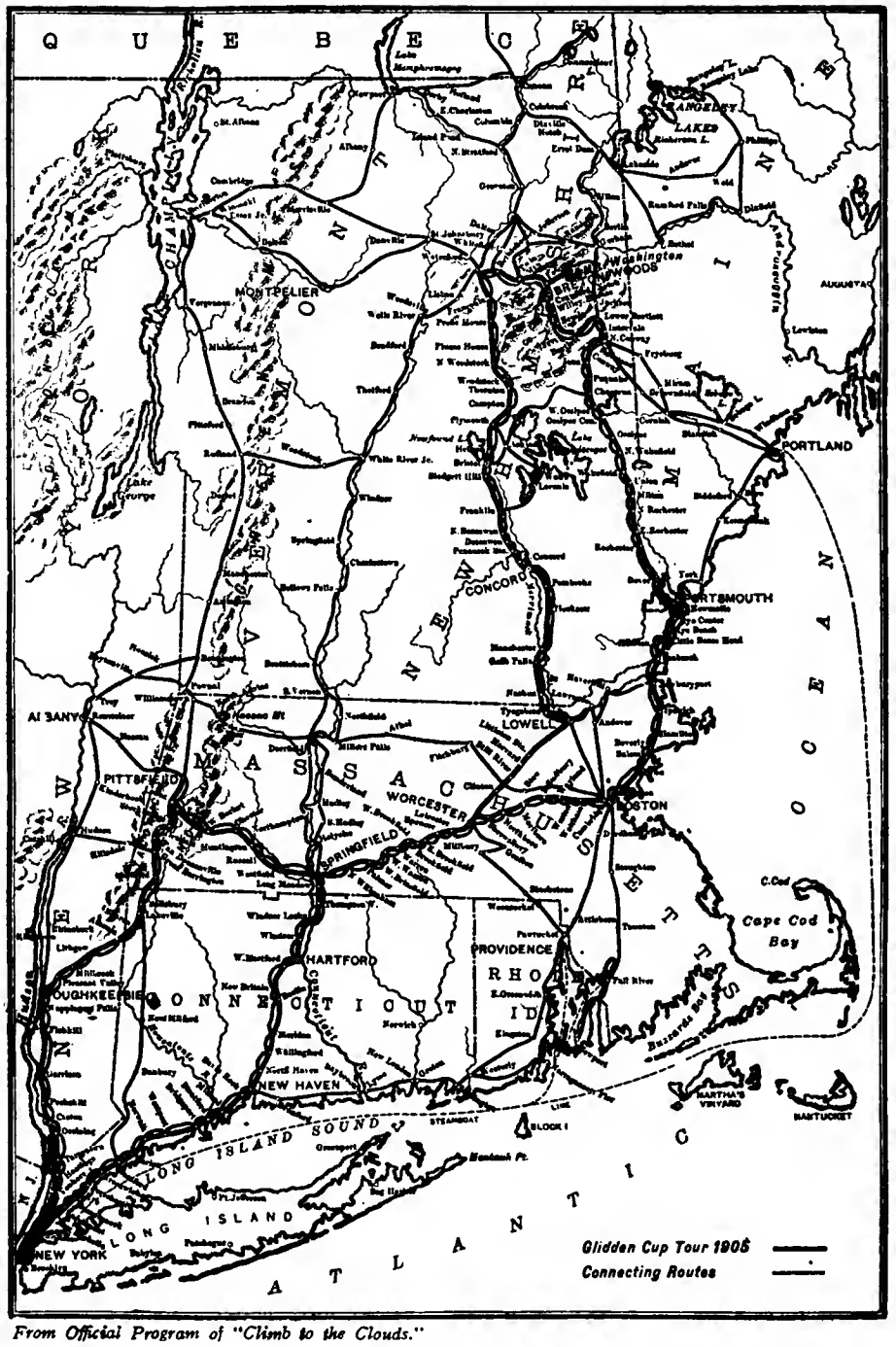
Thursday's run (July 20) of 99 miles culminated in the arrest of six of the tourists at the Bay State House in Worcester upon warrants issued last week for exceeding the speed limit in Leicester on the up trip. The summonses to court were served in the rooms of the Worcester Automobile Club upon Carl H. Page, W. C. Temple, Mrs. J. N. Cuneo, R. E. Olds, E. H. Fitch and R. L. Morrell. A star chamber session was held by Constable Quinn and the "convicts," as they were promptly dubbed by the other tourists, with Mr. Glidden and Post, of the touring committee, and council present. It was held from 6 to 7 o'clock, and bonds were given for appearance in the district court of the county at 9 A. M. Friday.

The intended service was the overshadowing topic of interest during the afternoon following the arrival of the autoists in Worcester. And after the summonses were served the matter continued to be discussed and means planned for partially evening the score with Leicester.

A foretaste of Friday morning's proceedings was had by George O. Draper, who finished Thursday's run first in his 22-horsepower Packard at 9:47 A. M., and was arrested by a bicycle policeman and taken at once to court, where a fine of $15 was imposed and paid. Later a policeman was posted on the road over which the tourists entered the city to warn them to drive slowly, as had been done by the Worcester officials on the upward trip.

Before going to bed the Glidden party agreed to wait for the end of the court proceedings in the morning, when all should start together, and, headed by a band on foot playing funeral marches, and with cars draped in mourning, should loaf through Leicester to express their ideas of the city's attitude toward the guests of the largest city of the county.

The day's run was through Manchester, Nashua, Littleton and Clinton to Worcester. The roads were mainly sandy, with some excellent stretches of macadam, notably at Lowell, Harvard, and entering Worcester. There was not much difficulty in following the route, although a number kept on the left side of the Merrimac river and ran into Manchester instead of crossing to the west side of the river and into West Manchester. And in Manchester some smart Yankee garage keeper had scattered confetti from the main street down a side street to his garage, and so misled a number of tourists, who lost time and temper in turning around and getting back into the main street.



From Official Program of "Climb to the Clouds."

MAP OF 1905 GLIDDEN CUP TOUR, SHOWING RAILROADS AND CONNECTING ROUTES.

Lowell proved a hard place to find the way through quickly, owing to its narrow streets, the frequent irregular angles to be turned and the difficulty of locating the postoffice, a prominent landmark given in the guide book, but obscurely located in the city.

Many places between towns the roads were very narrow and wound sharply through trees and shrubbery, making the passing of teams most dangerous. It was in such a place that a collision occurred between E. H. Cutler's Knox car and a wagon load of lumber. The wagon pulled out to the left, leaving barely room to pass on the right between the wagon and a row of trees. A. E. Denison was driving, and the road surface was sandy. When the car was about a length from the wagon and running slowly, the rear wheels skidded to the right, and before Denison could get it straightened out the corner of the hood struck the overhanging rear of the lumber load. The impact crumpled up the light bonnet and pushed back the dashboard, catching the driver's foot as it was thrusting forward on the brake pedal, so as to dislocate a joint of one toe and break one of the bones. Mr. Cutler also had his foot

caught under the edge of the generator on the dash and severely pinched.

Denison was taken to a doctor, who put his foot in a plaster cast, and then the man pluckily drove the car the rest of the way into Worcester. No harm was done to the car save the bending the hood and breaking of the dash; the engine did not even stop running after the collision, as none of the batteries and wires carried under the bonnet was broken, and the car has no radiator to damage.

The only other mishap of the day was the running away of a team hitched to a mowing machine when one of the cars passed. The driver was pitched off the seat and seriously injured, while the machine was badly broken.

The weather was perfect, coming after the hot weather of the first of the week and the deluge of Wednesday.

The order of the early arrivals was G. O. Draper, Packard 22-horsepower, first at 9:47 A. M.; Walter White, 15-horsepower White, second; S. B. Stevens, 15-20-horsepower Darracq, third; Edward H. Woods, 18-horsepower Napier, fourth at 10:08; J. D. Maxwell, 8-horsepower Maxwell, fifth at 10:19; C. W. Kelsey, 16-horsepower Maxwell, sixth; George H. Tyrrell, 15-horsepower White, seventh; Mrs. Cuneo, 15-horsepower White, eighth at 10:58. The Knox truck arrived at 2:10 P. M.

E. B. Gallaher arrived at 11:50, accompanied by his mother on the single seat of his stripped 50-horsepower Richard-Brasier that took part in the Climb to the Clouds on Tuesday. E. C. Bald also registered at the hotel, having driven a Columbia from Bretton Woods down through Boston to Worcester.

A pleasant diversion was provided for the tourists following the second day's run on the return trip that ended at Worcester. At the Bay State House the participants were handed reserved seat tickets for the evening at the Franklin Square Theatre, provided by courtesy of the Worcester Automobile Club, and a large number attended the play "All on Account of Eliza." The fun presented in the play was much enjoyed, as were also a number of jokes having especial application to the tourists that were read between the acts by Mr. Williams, who played the principal part in the character of Franz Hockstuhl.

Mr. Glidden took the opportunity between the acts to make a brief address to the audience in connection with the arrests of half a dozen of the tourists made hy the constable of Leicester. He concluded by reading a statement that he had handed out to the press earlier in the evening. In this he called attention to the fact that the persons arrested were law abiding residents of other States who were competing for a trophy given with the object of encouraging motoring for health and recreation under such favorable conditions that both ladies and gentlemen might participate. He stated that without having been given friendly warning such as had been courteously given by the police of Worcester upon their entry into that city, they had been drawn into a police trap set at a point where a short burst of speed for a distance of less than 300 feet would be certain, if anywhere in the city, because of the approach at that place to an up grade that all would naturally want to ascend without changing gears. He said that the tourists had been invited to visit Massachusetts by some of its leading citizens and were, therefore, the guests of the people and should have been treated as such, in stead of, for the first time in their lives, being hranded throughout the country as law breakers and criminals.

THE ONLY RUNABOUT IN THE GLIDDEN TOUR—8-H.P. MAXWELL.

Bretton Woods to Concord.

Dangerous mountain roads and a heavy wind, rain and electrical storm combined to make the first day's run on the return from Bretton Woods to New York by far the worst of the tour.

Many accidents were feared as the run progressed and the sun made the roads muddier and more dangerous for those who started late or ran so slowly as to be overtaken by the storm when only a short distance on the way, and be followed by it down the valley of the Pemigewasset River all the way to Bristol, seventy miles. Almost miraculously, nothing of a serious nature happened, and by 8 P. M. all of the thirty cars that started from Bretton Woods in the morning had reported at the A. A. A. headquarters in the Eagle Hotel in Bristol. There were innumerable small troubles, however, nearly all occasioned by the wet, hilly roads, where traction could not be secured by many cars whose wheels were not fitted with chains, and on the long, steep down grades of which others burned out their brakes or skidded dangerously.

The distance covered during the day was 103 miles, the route being through Bethlehem, Franconia, Plymouth, Bristol, Franklyn and Penacook to Concord.

Trouble came early in the day, the descent of Mount Agassiz into Franconia by an almost precipitous road that was so narrow that two machines could not pass, very tortuous, with frequent thank-you-ma'ams and completely overarched with trees, presenting one of the most difficult and dangerous mile stretches of road that most of the tourists had ever seen. At a turn near the middle of this a farmer driving a light single-horse wagon containing a can of milk for market met the first of the tourists coming down, and his horse promptly reared and backed the wagon over a pile of logs. The farmer took him out of the thills and stood with him by the roadside under the trees, patiently and with rare good nature waiting for the following cars to pass. His presence, however, generally held up the cars in bunches, while passengers ran ahead to learn the trouble and offer assistance.

It was a descent that was hard on brakes and a number of drivers threw in the clutch and braked on the compression of the engine. Kelsey, who had climbed Mount Washington several times in his Glidden tour car on Monday and Tuesday, pronounced the descent of Mount Agassiz a worse one than that of the famous Mount Washington road.

After the difficulties of that stretch of bad road, the excellent and most beautiful macadam road extending for miles beyond Franconia past Echo Lake, Old Man of the Mountains and through Franconia Notch was all the more appreciated and enjoyed. All the way the road was overarched with fine big trees, and was bordered on one side or the other by lake or river, with frequent vistas of the towering mountains that close it in. Scenically the run nearly all the

way to Concord was the finest and most interesting of the whole tour, and Nature's beauties in the form of majestic mountains towering one after another in all directions for fifty miles were most impressive. The tumult of mountains vanishing into the dim distance and curtained thinly with hluish gray vapor bore a most striking resemblance to a storm-tossed sea—an impression further accentuated by the swaying and pitching of the "pike yachts" as they negotiated the rutty sand roads that were traversed most of the day when they did not change to muddy pitches up and down the sides of the mountains.

That these scenes should be blotted out by one of the frequent violent summer storms common to mountain districts must be counted as "all in the automobilists' luck," and as such it was taken good naturedly and without murmur, even by such passengers as, lacking experience in such affairs, had not provided themselves with adequate rubber garments as a protection against it. Very few of the cars stopped during the first and heaviest of the rain, and all who did not ride in covered cars or did not wear rubber trousers or cloaks soon became soaked from the water running onto the seats as well as driving into their faces. It was a deluge from which none escaped, except the lucky few who started first promptly at 6 A. M., and even these were overtaken by a dusty wind storm though they outran the worst of the rain, for the storm spent its force before it reached Franklyn. Many caught the full effect of the storm while skirting the east shore of beautiful New Found Lake.

The hardest bit of uphill work of the day was just below Franconia, on the famous three-mile mountain climb to Profile House. It was there that many drivers stopped to put on tire chains. Near the foot of the climb Kelsey, in whose fine little hill-climbing 16-horsepower Maxwell the writer was one of three passengers, passed the Packard baggage truck which had started in the middle of the night, and Mrs. Cuneo's party, on whose White car the pump had been broken on the up trip to Mount Washington. At times during the day half a dozen cars were stalled on that particular grade.

One of the most pleasurable features of the day was the great interest taken in the tour by the farmers and townspeople along the route. At almost every house the inhabitants were out in front to cheer or salute the automobilists with a well-wishing smile as they rushed past. Some had decorated their houses and fenceposts with flags, and at one place, near Plymouth, a farmer's family had gathered a number of local musicians, and as each car passed they saluted it with a bass drum, a cornet and other instruments, while the women folk waved flags. At this or some similar place pond lilies were tossed into the cars as they passed. Guests at most of the summer resort hotels also gathered on the great verandas to watch the unusual sight of forty automobiles pass over the New Hampshire road in the day, for a number of other tourists kept the Gliddenites company.

Another evidence of the good will of the New Hampshire farmer and of his desire to keep abreast of the progress of the century was the number of horses tied or held close to the road along the way to get them accustomed to automobiles. Most of the animals showed an unexpected composure, and only in two or three cases were there any threatened runaways.

The last eight miles of the run into Concord was over a fine new macadam road skirting the trolley line from Penacook, and fast time was made over it, as the unfriendly spirit manifested so pronouncedly in Leicester, Mass., and Dover, N. H., on the way up was noticeably absent, no police traps or officers being in evidence. Early arrivals got into Concord between 1 and 2 o'clock, the first being E. H. Cutler and C. R. Culver, in Knox No. 35, which had started fourth from Bretton Woods at 6 A. M., having covered the 103 miles of most difficult going in seven hours. Other early arrivals were C. H. Walker, in the Pope-Hartford 18-horsepower; George H. Tyrrell, in White steamer No. 39; J. D. Maxwell, in his 8-horsepower Maxwell runabout; F. Offenhauser, in Benjamin Briscoe's 16-horsepower Maxwell; Harold L. Pope, in the 12-horsepower Pope-Tribune; E. H. Woods, in the 18-horsepower two-passenger Napier (the first American-built Napier), and C. W. Kelsey, in his 16-horsepower Maxwell. Kelsey, who started at 7:15, finished at 1:45, his running time, deducting a thirty-minute stop at Bristol for the storm to abate, being six hours. By 2 P. M. twenty-eight of the cars had finished, all more or less covered with mud and with passengers wet and weary, and by 6 o'clock the touring cars were all in and the two trucks close to the city.

The good fellowship and democracy of the automobilists was never better exhibited than at Concord, where the earlier arrivals sat on the steps of the Eagle Hotel discussing the events of the days and awaiting the incoming of the later ones. Among these were Charles J. Glidden, who is following the tour all the way by train, as he was unable to get his car to America in time to join the tourists; George N. Pierce, Arthur and Albert Pope, S. B. Stevens, Charles Otis Draper, E. H. Cutler and others well known in the sport and trade.

Most of the arrivals had stories to tell of skidding or mechanical or tire troubles. The baggage trucks were objects of especial interest in view of the difficult nature of the course and their comparative unwieldiness. Despite their troubles, they both got in during the evening—the Knox about dark and the Packard, which carried the largest load, after supper.

Sydney Hutchinson arrived in his big 50-horsepower Panhard about 4:30 P. M. with a party of five and much luggage, and reported having had much trouble in the soft earth on the hills, where in several places his wheels dug deep holes in the road that Mr. Hutchinson thought would make trouble for following cars. He passed the Packard truck many miles back, descending a long hill and holding back about a dozen other cars.

Kerrison, of Boston, who is accompanied by his wife and little daughter, did not finish until about 6 o'clock, having had to "jump" his little Cadillac car up some of the worst hills by racing the engine and then quickly throwing in the clutch. Some of the steepest pitches on the hills measured by the gradometer 25 and 27 per cent. grades.

Hilliard and Mitchell drove up in the Napier that won the Climb to the Clouds in the record time of 20:58 2-5 seconds at 4:30, and a few minutes later E. B. Gallaher brought the Richard-Brasier hill-climbing machine in, his mother occupying the seat by his side, the car being stripped of the tonneau.

S. B. Stevens arrived at 2 P. M. with his 15-20-horsepower Darracq, stripped of its rear seats.

Another stripped foreign car—the big Decauville that was entered in the climb—had much trouble with its tire chains slipping off and by its left driving chain jumping the sprocket. The chain was quickly replaced by loosening the strut rod and slipping it over the sprockets.

Among the "outside" automobilists that pulled into Concord Wednesday evening were A. E. Morrison, who made the remarkable time up Mount Washington in a Peerless last year, and who had just driven up from Boston to Plymouth with a party in a Peerless to meet the tourists.

Although caught in the heavy shower, Mr. and Mrs. E. H. Fitch and their little girl finished at 5:05, looking fresh and comfortable, as the Fitches, like the Pierces and Temples, were making the journey leisurely in commodious cars of long wheelbase, fitted with Cape Cart hoods.

H. W. Whipple, with Mrs. Whipple and friends, came in at 5:58 o'clock in his 35-horsepower Peerless, having been delayed one and a half hours by a troublesome fan belt and another hour by tire trouble.

Concord was the most deceptive place on the whole run in the matter of public sentiment toward automobiles. When the tourists rolled into the city early in the afternoon it looked like a city whose inhabitants had suddenly and simultaneously disappeared. But in the evening the appearance was utterly changed, and the tourists were given the greatest popular reception received anywhere along their 600 miles of touring. After supper a brass band serenaded the automobilists from the public square in front of the Eagle Hotel, which was headquarters for the tourists.

Apparently all the able residents of Concord congregated in the broad street between the hotel and the square, to the number of probably 5,000, listening to the music

and watching with excited interest the large cars moving about the street. It was a real gala occasion, and the reception was so much appreciated that when there were calls for a speech from Mr. Glidden he responded, thanking the townspeople for the courtesy shown the visitors, and expressing the hope that the tourists might visit Concord next year.

The attitude of the local authorities toward the tourists was in striking contrast with that of the police of Leicester and of Dover. Instead of laying police traps to catch the unwary, the police were not to be seen at all on the fine eight-mile stretch of boulevard leading into the city, but as soon as the cars began arriving at the hotel and garage officers were plentiful enough there, and kept the hundreds of inquisitive small boys from getting in the way of the tour-machines.

GLIDDEN TOURISTS LEAVING THE MAGNIFICENT MT. WASHINGTON HOTEL AT BRETTON WOODS IN THE WHITE MOUNTAINS.

The crowd in the street did not disperse until a late hour, when the visitors sought their rooms, weary from the day's run and anxious to get an early start on the morrow.

Prince Henry of Prussia will drive a 40-horsepower Benz car in the Herkomer Touring Competition, his number being 7. H. R. H. will start in the third class for cars from 32 to 60 horsepower. The close of entries hav proved a total of ninety-six, which are divided as follows: four cars of from 100 to 60 horsepower, 39 of from 60 to 32, forty-six from 32 to 16, and seven from 16 to 12 horsepower. The Bleichroader speed events have only seven entrants to date, but these range from 70 to 130 horsepower, and consist of two Gordon Bennett Mercedes, a Vienna Daimler, a Fiat, a De Dietrich, a Buggatti and a Dufeaux, while a Brasier with Théry up, is promised. Besides this, fifty entries have been received for the motorcycle events.

Mechanical Troubles on the Tour.

By HARRY B. HAINES.

UNTIL the official records are in there is no possibility of recording anything like a complete account of the mechanical troubles encountered by the tourists. Such an account is of the greatest importance to the builder and user, showing the one where improvements or modifications of construction are desirable, and giving to the other a knowledge of what to look out for in the correct operation of existing machines.

W. C. Temple, of Pittsburg, driving a Pierce Great Arrow, reported that his engine troubles during the tour consisted of one disabled spark plug, in which the porcelain had cracked. The plugs had to be cleaned, having sooted. On the last day the cone and balls in one wheel bearing ground up.

Harlan W. Whipple, driving a 35-horsepower Peerless, said that he had been obliged to have his spark plugs cleaned and to tighten his brake bands. Trouble with the car's sparking system which had proven annoying during the early part of the run was remedied by changing the spark coil and putting in a new one. A broken fan belt and tire troubles were also listed.

Augustus Post, driving a White steamer, stated that he had a clean record at Worcester. The car appeared to be in excellent condition with the exception of a slightly sprung rear axle.

Carl H. Page, one of the White steamer contingent, was pleased to be able to state that his car had met with absolutely no mishaps either to machinery or tires, and had a clean score. Apart from the ordinary adjustments attendant upon touring usage and the tightening of the mud guard bolts nothing was done to the machine.

G. O. Draper, driving a Packard car, had nothing to report, except that his car had required no attention and was enjoying a clean record at Lenox.

A. W. Church, with a 35-horsepower Decauville car, had no end of trouble with the car heating up. During the parade at Leicester when the machines proceeded slowly behind a band the water boiled so violently that it spouted through the vent in the water tank cap in a stream to the height of five feet or more. The car also had tire troubles and slightly bent one of the front spindles.

Percy P. Pierce, driving a Pierce Arrow, made no replacements of parts or adjustments beyond those usually made on any car after a hard day's work, such as readjusting the coil vibrators. No tire troubles had been experienced.

Harold L. Pope, driving the Pope-Tribune car, reported a clean machinery schedule and one puncture.

Charles E. Walker, driving a Pope-Hartford, stated that the car had given no trouble and his only delays en route had been occasioned by two punctures.

A. L. Pope, with a Pope-Toledo, who made 6 o'clock starts throughout the tour, stated that the machine had given absolutely perfect service and had a clean record unmarred by either engine or tire troubles.

J. D. Maxwell, driving a Maxwell car, reported one puncture, a nail having been picked up in the rear tire. While in Bretton Woods a key in the differential came out and the replacement occupied several hours.

S. E. Hutchinson, of Philadelphia, driving a 50-horsepower Panhard, had very good luck and a clean record until near the end of the run, when he was delayed between Springfield and Lenox, Mass., by engine troubles the exact nature of which were not reported.

Mrs. J. Newton Cuneo, the daring woman driver of a White steamer, had a number of trying experiences. A broken water pump delayed her on one stage. Her car was ditched the first day out and badly shaken up. On the run from Worcester to Lenox, Mass., when about 20 miles from Lenox the driving shaft of the car was reported to have broken and assistance was sent out.

E. H. Woods, driving the first American Napier, experienced considerable trouble en route, but finished in good order. A broken strut rod was the most serious mishap.

Edward Gilmore, driving a Rambler, reported no trouble with tires and engine and no work on the car other than the adjusting of the brake bands.

Walter C. White, driving a White steamer, reported a clean record with the exception of ordinary touring adjustments.

R. L. Morrell, driving a Locomobile,

claimed an absolutely clean tire and engine record with the exception of the adjustment of the make-and-break on the sparking system.

S. B. Stevens, driving a Darracq, claimed a clean record.

R. E. Olds, driving a Reo, had an inner tube melt and had half an hour's delay caused by spark troubles, the result of a short circuited wire.

R. M. Owens, driving a Reo, claimed a clean machinery record on the run to Springfield, Mass. He was delayed by a rear tire blowing out. A messenger came to Springfield, and, securing a tire, returned with it to the disabled machine. Adjustments of the coil were required at Lenox.

E. H. Cutler, of Springfield, Mass., driving a Knox car, had two punctures and his car was slightly damaged by running into a lumber wagon.

A. A. Grout, with the new Grout four-cylinder gasoline car, was unable to get his car ready to start in time and attempted to follow the tourists and overtake them, but owing to unexpected machinery trouble was unable to do so.

G. H. Tyrrell, of New York city, driving a White steamer, was obliged to replace a high-pressure hose. He also experienced tire troubles.

C. W. Kelsey, driving a Maxwell car, broke a connecting rod, but experienced no other difficulty after making repairs.

No official report of accidents or breakdowns has been issued.

Condition of the Cars.

Although lacking the severe road and weather conditions of the Pittsburg and the St. Louis runs, the Glidden tour to the White Mountains has been a severe test on both men and cars, and has again demonstrated the fact that automobiles are machines of practical utility.

Despite the fact that they had covered 600 miles by the time they reached Worcester, the surviving cars were in excellent condition and, it is safe to say, could have been driven over the entire course again without repairs or part replacements of any consequence.

Looking over the machines after they had been washed up at the garage, no one would have thought that they had been up to Mount Washington from New York and Boston, and had negotiated the varying roads met with in that distance.

There was a surprising lack of sprung and bent axles, and the springs which had suffered so severely on previous runs seemed to be in good shape on all the machines.

The general trend of manufacturers toward strengthening these essential parts was evident and the result must have been gratifying to them.

The encasing of chains and engines had worked wonders for the tourists, and when the motors were started for the trip to Lenox the absence of that familiar grinding of mud and dust in bearings was pleasantly missing. To this in a great extent the excellent condition of the cars was due.

MAXWELL 16-H.P. TOURING CAR ENTERED BY BENJAMIN BRISCOE, OF TARRYTOWN, N. Y.

It was noticeable at the garage that all of the drivers were particularly careful in going over their machines and making adjustments before starting, and in the cases of a number of the multiple-cylinder cars the sparking systems received particular attention, coils being tested and plugs cleaned. The main trouble met with seemed to be due to the very liberal use of oil, made necessary to keep the engines cool under the trying runs up mountain roads made dangerous and "skiddy" by a heavy rain on Wednesday.

When the motors were started on Friday morning(July 21) it was noticeable that the four-cylinder type had lost practically none of their smooth-running qualities, and had developed no connecting rod or bearing knocks. In some of the double-cylinder opposed cars slight connecting rod knocks were noticeable, but, on the whole, all of the engines were in remarkably good running order.

From the reports of drivers of the various cars it would seem that there had been very little engine trouble experienced by the survivors, and in many cases it was claimed that the machines had a clean record, all stops being ascribed to most anything but engine weakness or ignition troubles.

It is very probable that this was the exact situation, as all of the cars have been well-equipped with heavily insulated wire and every precaution possible taken against "sparking troubles."

In all of the cars the compression seemed to be remarkably good when the severe usage given the engines is considered. All of the drivers commented upon the fact that no grinding in of valves had been found necessary, and felt sure that this was due to the superior materials now used, the more careful construction, and, in some cases, the more conservative use of gasoline and oil, which obviated the troubles ensuing from sooted pistons and explosion chambers.

The exception to this rule, however, was R. E. Olds, driving a Reo car. He had bought some oil that, in his own language, had proven to be "liquid glue." It gummed up the pistons and settled in a soggy mass in the explosion chambers, from where it could be scraped out in quantities. Mr. Olds got rid of the stuff as quickly as possible, saving a small sample which he declared he intended to have analyzed just to ascertain what its component parts really were.

Thanks to the present system of positively driven water pumps, none of the engines met disaster as a result of the failure of their water pumps, and in all of the large gasoline cars little if any water was needed between stages. One manufacturer who prides himself on the cooling properties of his four-cylinder motor had, he claimed, the same water in his car at Pittsfield that he had started from New York with, and intended to finish without replenishing the supply.

The showing of the two trucks, carrying hundreds of pounds of baggage, was indeed a remarkable one. The Knox wagon completed the run with a clean record, and negotiated the famous Jacobs ladder and Morey hill without assistance. The Packard truck had to undergo repairs at Worcester, a rear spring having given out. On the run to Lenox the truck was stalled on the Morcy hill, and had to have assistance. It had, however, to its credit the extraordinary feat of climbing and descending the Mount Washington road, a task that taxed some of the touring cars to their limit.

That two commercial vehicles of these types could complete an 870-mile tour and hold their own on the road against pleasure vehicles, despite the heavy loads carried, is proof conclusive that the auto for business uses is keeping pace with its more speedy touring brother in improvement.

Tires in the Tour.

Tires stood the test of the 870-mile tour better than they have ever come through any similar event of the kind, showing clearly that large steps have been taken in the improvement of this most important part of the equipment of an automobile. During the eight days of running it was unusual to see a machine stopped by the roadside with an axle jacked up and the tire undergoing repair or replacement. Road conditions were in no wise responsible for this, as the roads were of the most varied character and quite as bad as in previous tours and endurance runs, with the exception of deep mud, which has no injurious effect on tires. The resolution adopted some time ago by the tire manufacturers fixing the sizes of tires to be used on cars of different weights doubtless had considerable effect in reducing tire troubles. The "bugaboo" of blow-outs which had marred the pleasure and spoiled the records of cars on previous runs was absent, and the tire representatives who accompanied the tour had an easier time than ever before. Extra shoes and inner tubes that were shipped to each night's stopping place were not drawn upon. Some of the cars went through the entire run, including the climb up Mt. Washington, without even so much as the pumping up of any of the tires.

There were on the cars that completed the run the following tires: Forty-one Diamond, 25 Goodrich, 20 Michelin, 20 International A. & V., 8 Dunlop. 4 Hartford Dunlop, and 8 Firestone solid tires. On several sets of the Goodrich tires the Bailey non-skid tread was used.

The tire troubles as reported unofficially were as follows:

Harlan W. Whipple, Peerless, three punctures, two tubes pinched and one blow-out.

Harold L. Pope, Pope-Tribune, one puncture.

Charles E. Walker, Pope-Hartford, two punctures.

J. D. Maxwell, Maxwell, one nail puncture.

R. M. Owens, Reo, rear tire blew out.

J. C. Kerrison, Cadillac, one puncture.

E. H. Cutler, Knox, two punctures.

W. N. Epping, White, one blow-out and one puncture.

Julius Mehlig, Knox, one inner tube ruined by defective shoe and one puncture.

G. H. Tyrrell, White, patch melted from rear tube.

Experiences in a Reo.

The drive from Worcester to Lenox, Mass., was an ideal one, and the tourists enjoyed the beautiful scenery of the Berkshire hills. The writer, riding in a 16-horsepower Reo car driven by R. E. Olds, had a trip unmarred by any mishap, and covered twenty miles an hour in the open country, up hill and down, despite the varying conditions of the road during this trip, which for several miles was through the hills on sandy trails, where the various cars followed in one another's tracks.

It was in country of this sort that the light and medium weight and powered cars made their best showing. They were able to get through the sand with materially less effort and waste of engine power than the heavy machines. Cars of 16-horsepower were taking grades on the high speed with equal passenger loads with the 40 and 50-horsepower ones, which were obliged to use their second and, at times, their low-speed gears.

On this stage of the run the tire question became an important one, and it is worthy of note that only one machine in the so-called "light" class experienced any trouble, that being the Owens Reo, on which a rear shoe blew up.

These comparisons, though not reflecting on the high-powered cars, which are in a class by themselves when the touring question is considered, demonstrate the fact that the medium-priced machine is equal in reliability and hill-climbing efficiency to the heavy touring machine.

The trip from Worcester to Springfield was made without mishap, very few cars being met, as the contestants were strung along the road at various intervals, and none having any great amount of trouble, all kept their relative positions. The larger cars, taking advantage of their high speed, would at times lag behind, and then with a roar and a rush start for the head of the procession and tear up the roads for miles at a terrific pace, regardless of all speed restrictions and of the discomfort of the other tourists who had to take their dust.

At Springfield the Knox car that had been damaged was taken to the factory and the smashed dash was temporarily repaired. At the Knox place Mr. Glidden arranged with W. E. Wright, vice-president of the company, to ride as his guest in a Knox car to Lenox, Mass. The party started early and waited at the famous Morey hill, the top of which has an elevation of 1,846 feet, for the contestants. When the faithful little Reo reached the hill after successfully climbing "Jacob's ladder," it was decided to stop for a few minutes before taking the steep rise. The Pierce Great Arrow, driven by Percy Pierce, was also stopped. A number of automobilists from surrounding places had driven out to the hill and waited at the steepest part of the ascent to watch the tourists make the climb. Pierce attempted it first, and started off on his second speed, dropping back to low gear as soon as he struck the heavy grade. The car went up without difficulty, although at a low rate of speed.

The Reo started next and rushed part of the hill on the high gear and then dropping back to low speed ground up the remainder at a speed varying from six to eight miles an hour. On the steepest part of the grade the engine slowed up considerably and two of the passengers jumped out to lighten the load and ran

CARS IN THE GLIDDEN TOUR LINED UP OUTSIDE OF BAY STATE HOUSE IN WORCESTER, MASSACHUSETTS.

MAKING WAY FOR A FAMILIAR ROAD USER IN RURAL NEW ENGLAND ON THE GLIDDEN TOUR.

alongside. The car at once picked up and they were nearly left. There is no doubt, however, but that the machine would have climbed the hill without any lightening of the load, as there seemed to be a reserve of power. Throughout the run the Reo had negotiated all the hills in good style and had held its own wonderfully well.

This steep hill passed, the run to Lenox was made without mishap, the only car passed on the road being the Packard truck, which had stopped on a hill. The chauffeur in reply to questions asked said that it was nothing serious and that no assistance was needed.

At the open-air garage below the Aspinwall Hotel all of the cars were gone over carefully. One fact that was particularly noticeable was that but very little gear or chain trouble had been experienced despite the severe character of the roads traversed and the hundreds of hills negotiated. There was little adjusting done to chains on any of the cars, a condition no doubt due to the fact that the chain manufacturers, like the tire men, have been insisting on heavier equipment. Brake bands and clutches seemed to have suffered the most severely. Almost all of the drivers had more or less adjusting to do on their coils and in the way of adjusting the sparking system and cleaning plugs. Beyond a good oiling of working parts no great attention was given them. This state of affairs was a great contrast to that experienced in the earlier endurance runs when half the night was spent on dozens of cars at a time making repairs and replacing parts.

The last day of the tour, embracing the run from Lenox, Mass., to New York city consisted of a 143-mile run through a most beautiful country and over most excellent roads. There were no end of hills to be negotiated of all grades and conditions. The tourists for the greater part made the start at 6 o'clock, Mr. Glidden giving the word to go at that hour. No regular noon stop had been decided upon, and although some of the tourists took dinner at Peekskill, a number of them had lunches put up at the hotel or bought eatables en route and camped out by the side of the road.

A weak part in an upper tube let down the rear tire on the Reo and a half hour was spent in making repairs. Apart from that the trip to New York was made without incident, the water, gasoline and oil supply being replenished at Poughkeepsie. At the end of the run the motor was running quietly and without any grinding of gears or knocking of loose parts, and seemed to be in as good condition as at the start, which appeared to be the case with any number of other entrants.

Throughout the country the people were uniformly courteous in giving road directions and in supplying any of the wants of the tourists. In some of the smaller towns the houses were decorated and the passage of the machines was made a gala event, the people in the cars being warmly welcomed. The spirit of antagonism against automobiles seemed to have disappeared to a great extent. Drivers of horses were willing to give up half the road when an auto approached and the men in the machines were equally willing to give the horsemen every chance.

Les Litiges de l'Automobile, which might be freely translated "Automobile Litigation," is the title of a new French book of 270 pages issued by Vve. Ch. Dunod, 49 Quai des Grands Augustins, Paris. This covers a variety of topics having to do with legal-commercial side of the industry, such as delays in delivery, claims for defects of construction, cancellation of sales, repairs, hiring and the like. The book is the joint production of J. Imbrecq, attorney-at-law, and L. Perisse, engineer and secretary of the Technical Committee of the Automobile Club of France. The book is intended to be of value to the trade rather than to the individual owner, and it is written in a very clear style and covers a surprising number of causes of dispute.

Entrants and Passengers.

Briscoe, Benjamin, Tarrytown, N. Y.; car No. 18; Maxwell, 16 horsepower; passengers, C. G. Stowe, Mr. Smith; driver, Fritz Offenhauser.

Church, A. W., Rockford, Ill.; car No. 12, Decauville, 30-35 horsepower; accompanied by L. A. Mitchell.

Coburn, Ralph, Boston; car No. 41, Maxwell, 16 horsepower; passengers Mr. and Mrs. Holland; driver, I. C. Kirkham.

Cuneo, Mrs. John N., Richmond Hill, L. I.; car No. 22, White, 15 horsepower; accompanied by Mr. Cuneo, Miss Grace Disbrow and Louis Disbrow.

Cutler, E. H., Springfield, Mass.; car No. 35, Knox, 14-15 horsepower; passenger, C. R. Culver.

Draper, George Otis, Hopedale, Mass.; car No. 10, Packard, 22 horsepower; no passengers; accompanied by chauffeur.

Epping, W. N., Pittsburg, Pa.; car No. 36, White, 15 horsepower; accompanied by C. H. Dixon, R. P. Johnston and chauffeur.

Fitch, Ezra H., Montclair, N. J., car No. 34, White, 15 horsepower; passengers, Mrs. Fitch and daughter.

Gilmore, E. A., Boston, Mass.; car No. 24, Rambler, 18 horsepower; accompanied by wife and chauffeur.

Hutchinson, Sidney E.; car No. 21, Panhard, 50 horsepower; accompanied by Mrs. Hutchinson and chauffeur.

Kelsey, C. W., Philadelphia; car No. 42, Maxwell, 16 horsepower; passengers, Mr. and Mrs. N. H. Brewster and H. W. Perry.

Kerrison, John C., Boston, Mass., car No. 32, Cadillac, 12 horsepower; passengers, Mrs. J. C. Kerrison and daughter.

Maxwell, J. D., Tarrytown, N. Y.; car No. 19, Maxwell, 8 horsepower; passenger, J. Ross.

Mehlig, Julius, New Orleans; car No. 38, Knox, 16 horsepower; passengers, Mrs. J. Mehlig and child.

Morrell, Robert L., New York City; car No. 27, Locomobile, 40 horsepower; passenger, Mrs. R. L. Morrell; driver and a dog.

Olds. R. E., Lansing, Mich., car No. 30, Reo, 16 horsepower; passengers, Alfred Reeves, Duncan Curry and chauffeur for R. M. Owen.

Owen, R. M., New York City; car No. 31, Reo, 16 horsepower; passenger, Mrs. R. M. Owen, Mr. and Mrs. John Gerrie.

Page, Carl, New York City; car No. 8, White, 15 horsepower; passengers, Ed. Spooner, W. J. Hedley and Joseph Bell, Jr.

Pierce, Percy P., Buffalo; car No. 14, Pierce, 28 horsepower; passengers, Mr. and Mrs. George N. Pierce, Miss L. J. Moody; driver, George Ulrich.

Pope, Albert L., Hartford, Conn., car No. 17, Pope-Toledo, 45 horsepower; passengers, A. W. Pope, A. L. Pope; chauffeur.

TABLE OF UNOFFICIAL DATA OF CARS IN THE GLIDDEN 1,000-MILE TOUR, JULY 11 TO 22, 1905.

Entered by	Passengers Carried.	Cooling System.	Tires Used.	Tire Troubles.	Car No.	Car	Motive Power.	H.P.	Type of Engine.	Record.
Elliot C. Lee, Boston	4				1	White	steam	10	compound	Did not make complete tour.
W. C. Temple, Pittsburg	4 and 5	water	4 Michelin	none.	2	Pierce	gasoline.	40	4 cylinder.	1 broken spark plug; 1 wheel cone and balls ground up.
Harlan W. Whipple, Andover, Mass.	5	water	3 Goodrich 1 Diamond	3 punctures 2 pinches 1 blow out	3	Peerless	gasoline.	35	4 cylinder.	Foul spark plug. brake bands tightened; new spark coil put in; fan belt broken.
Jas. L. Breese, Southampton, L. I.		water			4	Mercedes	gasoline.	40	4 cylinder.	Did not start.
R. P. Scott, Baltimore					5	Peerless	gasoline.	35	4 cylinder.	Did not start.
Augustus Post, New York City	3		4 Diamond	none	6	White	steam	15	compound	Clean record.
Lewis R. Speare, Boston		water			7	Winton				Did not start.
Carl H. Page, New York City	4		4 Diamond	none	8	White	steam	15	comp'nd.	One stop, mud guard bolts loose.
C. J. Edwards, Brooklyn	4	water	Michelin		9	Cadillac	gasoline.	24-30	4 cyl.	Did not finish. Steering gear broken by car upsetting on bridge.
G. O. Draper, Hopedale, Mass	4	water	2 Diamond 2 Goodrich	none	10	Packard	gasoline.	22	4 cyl.	Clean record.
W. B. Hurlbert, New York City	5	water			11	Packard	gasoline.	28	4 cyl.	Did not start.
A. W. Church, Rockford, Ill.	2	water	Continental	none	12	Decauville	gasoline.	30-35	4 cyl.	Engine overheated; chain jumped sprocket.
C. J. Glidden		water	English Dunlop		13	Napier	gasoline.	24	4 cyl.	Did not start.
Percy P. Pierce, Buffalo	5	water	4 Goodrich	none	14	Pierce	gasoline.	28	4 cyl.	Clean record.
Harold L. Pope, Hagerstown	2	water	4 Goodrich	1 puncture	15	Pope-Tribune	gasoline.	12	2 cyl. opposed.	Fender rod broken; gasoline tank sprung leak.
Chas. E. Walker, Hartford	3	water	4 Diamond	2 punctures	16	Pope-Hartford	gasoline.	18	2 cyl. opposed.	
A. L. Pope, Hartford	3	water	4 Diamond	none	17	Pope-Toledo	gasoline.	45	4 cyl.	Reported clean record
Benj. Briscoe, Tarrytown, N. Y.	4 and 5	water	Internat'nal A and V	none	18	Maxwell	gasoline.	16	2 cyl. opposed.	Broke connecting rod.
J. D. Maxwell, Tarrytown, N. Y.	2	water	Internat'nal A and V	1 nail puncture.	19	Maxwell	gasoline.	8	2 cyl. opposed.	Broke differential key.
K. C. Pardee, New York City	4	water	Internat'nal A and V		20	Maxwell	gasoline.	16	2 cyl. opposed.	Did not start.
S. E. Hutchinson, Philadelphia	4	water	Michelin		21	Panhard	gasoline.	50	4 cyl.	Broke crankshaft.
Mrs. J. N. Cuneo, Richmond Hill, L. I.	4		4 Diamond	none	22	White	steam	15	comp'nd.	Broken water pump; ditched at Greenwich; driving shaft broken near Lenox, Mass.
E. H. Woods, Boston	3	water	4 Michelin		23	Napier	gasoline.	18	4 cyl.	Bent distance rod.
E. A. Gilmore, Boston	4	water	4 Diamond	none	24	Rambler	gasoline.	18	dbl. cyl opposed.	
G. H. Lowe, Boston	4	water	4 Goodrich		25	White	steam	15	comp'nd.	Did not start.
Walter C. White, Cleveland	2		4 Diamond	none	26	White	steam	15	comp'nd.	No mechanical trouble.
R. L. Morrell, New York City	4	water	4 Diamond	none	27	Locomobile	gasoline.	40	4 cyl.	No repairs.
S. B. Stevens, Rome, N. Y.	2	water	Michelin	none	28	Darracq	gasoline.	15-20	4 cyl.	Clean record.
H. Thomas, New York City	2	water	Internat'nal A and V	none	29	Maxwell	gasoline.	8	2 cyl. opposed	Left tour at Boston. Broke axle in collision first day.
R. E. Olds, Lansing, Mich	4 and 5	water	Bailey tread 4 Goodrich	1 inner tube melted.	30	Reo	gasoline.	16	2 cyl. opposed	Short circuited wires.
R. M. Owens, New York City	4	water	Bailey tread 4 Goodrich	1 rear shoe blew up.	31	Reo	gasoline.	16	2 cyl. opposed	Clean record.
J. C. Kerrison, Boston	4	water	4 Hartford Dunlops	1 puncture.	32	Cadillac	gasoline.	12	4 cyl.	Dirty spark plugs.
S. B. Bowman, New York City	4	water			33	Clement Bayard	gasoline.	30	4 cyl.	Did not start.
E. H. Fitch, Montclair, N. J	4		4 Diamond	none	34	White	steam	15	comp'nd.	
E. H. Cutler, Springfield, Mass	4	air cooled	4 Diamond	2 punctures	35	Knox	gasoline.	14-15	2 cyl. opposed	Hood crushed by collision with lumber wagon.
W. M. Epping, Pittsburg	4		4 Diamond	1 blow out, 1 puncture.	36	White	steam	15	comp'nd.	Clean record.
A. A. Grout, Orange, Mass	4	water			37	Grout	gasoline.	24-30	4 cyl.	Did not start officially.
Julius Mehlig, New Orleans	3	air cooled	4 Dunlop	1 puncture 1 tube mt.d	38	Knox	gasoline.	16	2 cyl. opposed	
G. H. Tyrrell, New York City	3 and 4		4 Diamond	patch melted rear tube	39	White	steam	15	comp'nd.	Replaced one high-pressure hose.
Wm. A. Lamson, New York City	4		4 Dunlop		40	White	steam	15	comp'nd.	Left tour at Plymouth.
Ralph Coburn, New York City	4	water	Internat'n'l A and V	none	41	Maxwell	gasoline.	16	2 cyl. opposed	Clean record.
C. W. Kelsey, Philadelphia	4	water	Internat'n'l A and V	none	42	Maxwell	gasoline.	16	2 cyl. opposed	Broke connecting rod.
Packard Motor Car Co	2 to 6	water	Firestone solid	none none	50	Packard truck	gasoline.	22-24	4 cyl.	Rear spring repaired.
Knox Automobile Co.	2	air cooled	Firestone solid		60	Knox truck	gasoline.	16	2 cyl. opposed	

Pope, Harold L., Hagerstown, Md.; car No. 15, Pope-Tribune, 12 horsepower; passengers, R. I. Pope and J. N. Deatrich.

Post, Augustus, New York City; car No. 6, White, 15 horsepower; passenger, Mr. Reglid.

Temple, W. C., Pittsburg, Pa.; car No. 2, Pierce Great Arrow, 40 horsepower; passengers, Mrs. W. C. Temple and C. E. Wolff, Jr.; driver, Mr. Wilson.

Thomas, Hugh, New York City; car No. 29, Maxwell, 8 horsepower; passenger, Mrs. Hugh Thomas.

Tyrrel, George H., New York City; car No. 39, White, 15 horsepower; accompanied by chauffeur.

Whipple, Harlan W., Andover, Mass.; car No. 3, Peerless, 35 horsepower; passengers, Mrs. H. W. Whipple and son, J. Harry Sheldon; Mr. and Mrs. Winthrop. W. Scarritt went as far as Bretton Woods in this car.

White, Walter C., Cleveland, Ohio; car No. 26, White steamer, 15 horsepower; accompanied by chauffeur.

Woods, Edward H., Boston, Mass.; car No. 23, Napier, 18 horsepower; accompanied by chauffeur.

Bases for Awarding the Trophy.

"Contestants will not be able to secure any definite information as to the method by which a decision is to be arrived at in selecting the winner of the Glidden trophy nor regarding the bases upon which credit points are to be awarded, until after a meeting of the tour committee in the first week of August at Boston or New York," said A. B. Tucker, special representative of the A. A. A. Glidden tour committee, at the Aspinwall Hotel at Lenox, Mass., to a representative of THE AUTOMOBILE last Thursday. "No one knows," he said, "how the scores will be figured and final results arrived at except Mr. Glidden and Mr. Kurtz, a civil engineer of the Licensed Association of Automobile Manufacturers, who had been especially commissioned to arrange the bases for points."

Each day, at the completion of the run, the contestants were required to fill in a record card like the one for the last day, which is reproduced herewith.

These cards were carefully preserved, and will provide much of the data from which the commission will make its calculations, and on which the results will be based so far as the actual service and merits of the various machines are concerned. Economy will be an essential of qualification. In addition to this complete card system of reports, each contestant was allowed on the last day of the run to vote for three cars which, by his ballot, were commended to the consideration of the commission. By this means it is hoped to get a concensus of opinion from the tourists themselves as to which cars are deserving of the greatest praise.

PACKARD GASOLINE TRUCK DESCENDING MT. WASHINGTON WITH A LIVE LOAD.

The meeting of the cup commission will be held in either New York or Boston, as suits the convenience of W. K. Vanderbilt, Jr., who represents the Automobile Club of France and the Deutscher Automobile Club.

SATURDAY, JULY 22, 1905.

American Automobile Association,

GLIDDEN TROPHY TOUR.

(To secure points for the day this card must be handed to M. L. Downs, not later than 6 P. M.)

To assist the Commission in awarding the Trophy, entrants will find it to their advantage to fill out, ABSOLUTELY CORRECTLY, the daily report card. The data furnished will be used in connection with a formula (to be published after the completion of the tour) in arriving at the total number of points to which each entrant is entitled, the maximum to equal 1,000, or 1,200 if a special contest is held under Article VII, clause 3A, of the Conditions governing the tour.

If the daily run is not completed within eleven hours, 20 points will be deducted for the day, excepting on the last day, July 22, when 14 hours will be allowed for the drive.

Cars with occupants will be weighed at some point during the tour.

Gasoline consumed (gallons)? .....

Lubricants consumed (quarts)? .....

Time delayed en route due to mechanical difficulties ?

.....

Time delayed en route due to tire troubles ?

.....

Time delayed en route due to other causes (state circumstances ? .....

.....

.....

Amount paid for services of persons other than occupants of car? .....

Number of persons actually employed making repairs if any? .....

Amount paid out for all parts and supplies (itemizing same on back of card) not heretofore included? .....

.....

Number of occupants carried in car this day? .....

Time of departure? ..... Time of arrival? .....

I hereby certify that the above statement is true.

.....
Entrant.

Witness —

.....
Occupant of car.

COPY OF CONTESTANTS' DAILY RECORD CARD.

The other members of the commission for 1905 are: Elliot Lee, chairman, representing the A. A. A.; Dave H. Morris, representing the A. C. A.; George McQuesten, representing the Automobile Club of Great Britain and Ireland, and Charles J. Glidden, donor of the trophy.

NEW PUBLICATIONS.

The Black Motor Car is a summer novel that is a thriller. It is written by Harris Burland, and published by G. W. Dillingham Co., of New York, bound in illustrated cloth and with a frontispiece that gives you an inkling of the love story in the book. The black motor car is a swift one, and certainly it can make a few hours fly away pretty fast. The ingenuity of a Poe in creating crime and a Conan Doyle in detecting it is fused with the thrilling savagery of a Stephenson tale in the construction of the story, which turns around the life of one John Porteous, alias Jordison, who goes to the bad for the love of a woman not his wife, and after a term of convict life gets into the automobile business in France and cleans up a fortune. With this he returns to England, his native land, builds the black motor car and starts out on a career of vengeance, which has for its aim the destruction of the woman whom he loved instead of his wife, and the death of the man whom he supposes murdered his son. There are more wheels within wheels in the story than in an equalizing gear, and it is as full of electric surprises as an Edison storage battery, and a heap more efficient in giving you a run for your money. The machine that raised so much Cain is described by the author as "made entirely of steel. * * * It had a 9-foot wheel base and was 18 feet in length and * * * weighed no less than three tons." He also writes that it could go about 90 miles an hour over ordinary English roads. We suggest to him in a confidential way that if he will let some of the big tire companies into the secret of how Jordison got around with a 6,000-pound car at 90 miles an hour without a puncture or a blow out, he will make a bigger income during the coming years than any author the world knows.

There are now more automobiles on the streets every day in Greenville than there are baby cabs.—*Covington (O.) Gazette.*

NEW RECORDS IN "CLIMB TO THE CLOUDS."

William Hilliard, in Napier Racer, Cuts Harkness' Record to 20: 58 2-5—Motorcycle Record Less than a Second Slower—Stanley Cuts Steam Figures Six Minutes.

By CHARLES F. MARDEN.

SUMMIT HOUSE, Mt. Washington, July 18.—As was the case at the inaugural "Climb to the Clouds" in 1904, the real record-breaking work was reserved for the second and final day of the tournament this year. The day broke clear on the Summit, much of the moisture had soaked out of the road and conditions generally were excellent for the machines and their drivers. The indications for a good day were so promising that no attempt was made to take advantage of the early morning to send up machines, and it was not until after 7 o'clock that the first car was ready to make the ascent. This delay was unfortunate, for in the middle of the forenoon a stray cloud floating along caught on the summit of the high mountain and clung there for the rest of the day, although the weather was clear at the Halfway House and the base. Sometimes the clouds broke enough to give a glimpse of the base, and at other times they emitted sharp showers.

The great event of the second day, and of the meeting, was the wonderful climb of the Napier Gordon Bennett racer, piloted by William H. Hilliard, of Boston, assisted by Frank Townsend as machinist. This car made the steep eight-mile ascent in 20:58 2-5, reducing by 3 minutes 39 1-5 seconds the record of 24:37 3-5 that was made by Harry Harkness with his Mercedes last year. The Napier started at exactly 8 o'clock in the free-for-all class, passed the two-mile man at 8:04:50, roared past the Halfway House at 8:09 and in seventeen minutes after the start it was at the six-mile post. As he passed each post the news was telephoned to the Summit, and the little group of officials and newspaper men that had stayed in the Summit House over night were eager with excitement. They saw Hilliard pass the six-mile post and shortly afterwards heard the faint artillery of the engine as the car mounted the steep grades. At 8:20:58 2-5 the car leaped over the rocky road to the finish line at the first barn, the red flag dropped, and a new hill-climbing record had been made.

Hilliard was congratulated warmly, but seemed to take his performance as a matter of course, his only concern being, apparently, that he had not made better time. Coming to the Halfway House, he said, he had trouble with the clutch, and Townsend had to hold it in with his hands. Further along a battery wire snapped and the battery box had to be unstrapped and the wire repaired. He thought that if he had another try he might cut a couple of minutes from his record. The car is a 40-60-h.p., four-cylinder racer, that was constructed for the British team in the Gordon Bennett race of two years ago in Ireland. It was brought to this country last winter, exhibited at the Boston show, and has since had an enviable career. It won at the Springfield hill-climb, under the guidance of Hilliard, again at the Worcester hill-climb, and took the most exciting race of the day at the Bay State Automobile Association meeting on Memorial Day. Hilliard was formerly a bicycle pace rider, but he has been an automobile driver for several years.

Next to the record-breaking climb of the Napier, the most important results were the performances of the Indian motorcycles ridden by Stanley T. Kellogg and Oscar Hedstrom. Three times these little machines made the ascent, and each time the record was reduced, until it was brought to within 4-5 of a second of the Napier's time. Kellogg started the ball rolling at 10.17, when he started up the mountain on a single-cylinder machine of 1 3-4 horsepower. He crossed the finish in 26:24, having reduced the record for motorcycles from 34:11 3-5, the best time made at the climb last year. A little later Hedstrom, on his two-cylinder Indian, made the climb in 22:42, the fastest time ever made on the mountain, with the exception of that of the Napier car. In the late afternoon Kellogg made another trial, this time using a two-cylinder machine, and he put the time down to 20:59 1-5.

The record for steamers was materially reduced in the course of the day, although it was not until the last attempt that Bert Holland put the record at its lowest point. Last year F. E. Stanley made the climb in 28:19 2-5. On his first trial to-day he set a new mark of 27:17. This was with the 15-horsepower car in the class for cars of 851 to 1,432 pounds. With the 10-horse-

NAPIER RACING CAR WHICH CUT THE MT. WASHINGTON CLIMB TO THE CLOUDS TO 20 MINUTES 58 2-5 SECONDS.

Results of Climb to the Clouds, Second Day, Tuesday, July 18.

Car No.	Car.	Driver.	Start.	Finish.	Time.	Event.
18	White	Webb Jay	7:19	7:58:01	39:01	4
15	Napier	W. H. Hilliard	8:00	8:20:58 2-5	20:58 2-5	10 Record
8	Stevens-Duryea	Otto Nestman	8:24	Ordered off course		4
29	Stanley	F. E. Stanley	8:44	9:11:17 2-5	27:17 2-5	8
39	Richard-Brasier	Van Tine	9:50	10:16:38 2-5	26:38 2-5	9
2	Pope-Toledo	Chas. Soules	10:12	Stopped at Halfway House		6
37	Indian	S. T. Kellogg	10:17	10:43:24	26:24	13
14	Cameron	E. S. Cameron	10:20	11:22:24 2-5	1:03:24 2-5	7
20	Crawford	R. S. Crawford	10:30	11:41:35 2-5	1:11:35 2-5	7
36	Indian	Oscar Hedstrom	11:22	11:44:42	22:42	13
8	Stevens-Duryea	Otto Nestman	.....	Ran into ditch at mile post		4
11	Maxwell	C. W. Kelsey	12:08	12:59:41 3-5	51:41 3-5	8
21	Marion	Peabody	12:22	1:32:57 3-5	1:10:57 3-5	8
38	Indian	S. T. Kellogg	12:42	1:32:59 1-5	20:59 1-5	13 Record
18	White	Webb Jay	1:10	1:43:32 2-5	33:32 2-5	9
2	Pope-Toledo	Chas. Soules	3:07	3:54:24	47:24:4-5	11
29	Stanley	Bert Holland	3:25	3:47:17 3-5	22:17 3-5	10
8	Stevens-Duryea	Otto Nestman	3:32	Stopped by bearing trouble		10
10	Columbia	H. P. Maxim	3:51	Reached Halfway House only		14
38	Indian	S. T. Kellogg	4:09	Punctured a tire		Record trial
26	Buick	A. H. Weisser	4:14	4:50:35 4-5	36:35 4-5	14
41	Buick	.....	4:25	Stopped at two mile		14

power car a little later, in the event for cars of 551 to 851 pounds, Bert Holland made the ascent in 30:34 2-5. Late in the afternoon Holland mounted the 15-horespower machine and started in the free-for-all class against the record of the Napier. He fairly flew up the mountain, his machine bounding from one side of the road to the other in the bad places. Though he made every effort and pressed his machine to do its best, he was unable to equal the record for the mountain. He succeeded, however, in putting the time for steam vehicles to 22:17 3-5. When the machine reached the summit, nearly all the seat spindles were broken. In Stanley's attempt he broke the water indicator tube and burned out the fusible plug.

Twice during the day Webb Jay made the ascent with a White steamer. On the first attempt, made early in the forenoon, he climbed in 39:01, which was a cut of more than three minutes from his time of last year. In the afternoon he made another essay at the mountain, and accomplished the flight in 33:32 2-5.

Much interest was felt in what would be done by the big Richard-Brasier, entered by Hugo R. Johnstone. The car arrived in this country only on last Wednesday, was brought directly to the mountain and was transferred by E. B. Gallaher to Mr. Johnstone yesterday. The car was in the hands of Van Tine, who had driven it up the mountain on Sunday in good time. It was started to-day at 9.50, and was making fast time, when the pan beneath the motor broke and dragged all the way up the hill. Near the top a rubber coat caught on the driving shaft, and was wrapped around it in a flash. Even with these handicaps, however, the climb was accomplished in 26:38 2-5.

Charles Soules, with the Pope-Toledo, had hard luck all through the day. On his first attempt he was coming fast, and had reached the six-mile post when his headlight broke off. It fell to the road, and as the car passed over it, the light jammed beneath the gasoline tank and broke off a petcock. Soules had to run the car back down the mountain for repairs. A second attempt resulted in a broken water pipe. On this trial the car was sent up in 47:24 4-5. This was the 45-horsepower car, and was the only contestant in the class for gasoline cars of any weight or power.

From the automobilist's point of view, the performances of the small cars to-day were remarkable, demonstrating a great advance in construction in the course of the past year. The Cameron was the first to try the hard eight-mile climb, and it and the Crawford were on the road at the same time. E. S. Cameron started his spider-like machine at 10.20. On the way up his motor got very warm, but he finished at 11.23:24 2-5, having taken 1:03:24 2-5 to make the ascent. The Crawford, piloted by R. J. Crawford. started ten minutes behind the Cameron, and climbed in 1:11:25 2-5. The Maxwell made the fastest time for a machine of its power in the tournament. Driven by C. W. Kelsey, this car started in the 851 to 1,432 pounds class at 12.08 o'clock, and finished in 51:41 3-5. The Marion in the same class, with F. H. Peabody in charge, climbed in 1:10:57 3-5. A 22-horsepower Buick driven by A. H. Weisser. which was not regularly entered in the climb, was permitted to enter the class for two-cylinder gasoline cars, and was the only car in event 14 to finish. It made the climb in the remarkable time of 36:25 4-5.

Early in the afternoon the cars which had climbed the mountain during the forenoon were permitted to descend. The first to go down the road was the Napier, with Hilliard at the wheel. He was told to proceed no farther than the Halfway House, and there to await further orders. Disregarding his instructions, however, Hilliard drove through to the bottom of the mountain. He was threatened with being disqualified for this proceeding. One of the last machines to make the descent was the Packard truck that had climbed the mountain on Sunday. The sending down of the machines made it late in the afternoon before others could come up, so it was after 6 o'clock when the program for the climb was finished and the officials descended on the cog railway for the last time.

Proposes Abandonment of Climb.

In a letter explaining the reasons for a charge of $2 for every car and 80 cents for each passenger that went up Mount Washington during the time of the "Climb to the Clouds," over which there was some criticism, W. J. Morgan, promoter of the contest, states that he is personally disinclined to have the event repeated next year. Entry blanks were out this year before the Mount Washington Road Company could be induced to come to a decision as to whether or not the automobilists might use the road again this year and what the charges would be. The company was urged to charge no toll, but as the road has never paid even interest on the investment of $100,000 expended in building it, the company would not let so good an opportunity to realize something go by, and in two days took in nearly $500 from the automobilists, charging toll not only for those cars that took part in the contest, but also for those going up only for practise trials, each ascent costing the entrant $3.60.

Mr. Morgan disclaims emphatically receiving any portion of the toll. He thinks it inadvisable to have another climb up Mount Washington, saying that when the

TELEPHONE EXPERTS AND OFFICIALS AT THE SIX-MILE POST ON MT. WASHINGTON.

S. T. KELLOGG TAKING TURN ABOVE SIX-MILE POST ON AN INDIAN MOTORCYCLE IN RECORD RIDE OF 20:59 1-5.

C. W. KELSEY AND J. D. MAXWELL IN 16-H.P. MAXWELL (No. 42 IN GLIDDEN TOUR) MAKING ASCENT IN 51:41 3-5.

R. S. CRAWFORD TAKING STEEPEST PITCH ON MOUNT WASHINGTON ROAD IN 10-H.P. CRAWFORD IN SECOND DAY'S EVENTS.

"Climb to the Clouds" was inaugurated last year the record to the summit was two hours, which in two years has been brought down to 20 minutes 58 2-5 seconds, which is very close to the safety limit. It has been demonstrated that automobiles of all classes have been brought to a state of perfection where they can ascend the steepest mountain roads as fast as anybody would care to drive them, and faster than the ascent can be made by any other means of transportation, so that no further advantage is to be derived from repeating the event over the same course. Accommodations at Glen, at the foot of the mountain, were inadequate, and the nearest points at which decent accommodations could be secured were at Gorham and Randolph, eight to ten miles, and Jefferson Highlands, about fifteen miles. Last year Anderson & Price, proprictors of the Mount Washington and Mount Pleasant hotels, paid one-half of the tolls, and the Summit Company contributed the other half toward the fund, which made possible the White Mountain automobile tournament, but this year neither the railroads nor the other hotels cared to contribute, so the burden fell entirely upon Anderson & Price, who did not feel that, in addition to providing the prizes and shouldering a large number of other expenses, they could pay the road expenses.

In consideration of these facts, Mr. Morgan suggests that climbs over some other mountain roads in the vicinity or a mountain tour with safely regulated speed and fuel economy tests and military maneuvers would give more general satisfaction next year.

New Metropolitan Garage.

The latest addition to the list of metropolitan garages, that of the Hewitt Motor Co. , Inc., which was opened on the first of this month at 6, 8 and 10 East Thirty-first street, is one of the largest and most completely equipped establishments of the kind in the city, occupying all three floors and the basement of each of the three buildings at that address. Not only will a large storage and repair business be conducted, but several complete cars will be manufactured and markcted as well. The officers of the corporation which will conduct the business are Edward R. Hewitt, president; George W. Phillips, vice-president and treasurer, and Charles O. Snyder, secretary and general manager.

The threc buildings occupied by the firm were formerly used as stables, but have been reconstructed and strengthened to fit them for their new use. The weight of the floors is carried upon longitudinal steel girders, which in turn rest upon transverse double trusses, and these are supported by columns which pass through all the floors down to a rock foundation, thus giving a stability of construction not always found in buildings of this class. A large elevator capable of carrying the largest and heaviest cars extends through all floors of the main building.

The outside of the building is attractively painted in white with green trimmings, and these two colors also predominate in the decoration of the office and the salesroom, which occupies the entire front of the ground floor in the main building, the walls being covered with green burlap and the ceilings, cornices and trimmings finished in ivory white. Back of the office and reached by an incline from the street level, is the main storage floor, having space for forty or forty-five large cars. The flooring is of cement and three large repair pits are provided.

The second floor of this building contains the drafting room, stock room and main assembling room of the factory. The third floor and thc basement are devoted to dead storage and will accommodate seventy-five cars. The basement also contains the stock room for the repair of the "Long Distance" automobiles, formerly made by the U. S. Long Distance Automobile Co., of Jersey City. The manufacture of these machines having been discontinued, the entire supply of parts has been purchased and replacements and repairs of these cars will be made by the Hewitt Motor Co.

The main floor of the smaller building is also devoted to storage purposes, but the second floor is occupied by a completely equipped machine shop, which contains many special pieces of machinery in addition to the usual lathes, planers, shapers drill presses, milling machines and grinders. Electric power is used. The third floor of this building contains the pattern room.

The cars to be marketed by the Hewitt Motor Co. comprise a runabout having a motor of 8 to 10-horsepower with a single horizontal cylinder, a hooded delivery wagon using the same motor and a 25-horsepower touring car with four cylinder vertical motor.

HEWITT MOTOR COMPANY'S GARAGE ON EAST THIRTY-FIRST STREET, NEW YORK.

Mr. J. W. Miller, the well-known traveling salesman for the Wayne Shoe Company, has decided to cut out long waits for trains in small towns where it takes considerably more time to catch trains out than to sell customers. In fact, he intends to stop traveling by rail except at times when the country roads get bad. Mr. Miller has purchased an automobile and has had it arranged so that he can strap his trunks behind and carry his samples with him. His territory lies in Ohio and Indiana, and in nice weather he figures that he can save both time and money with his machine.—*Fort Wayne (Ind.) Gazette.*

Letter Box

The Gorden Bennett Race Viewed by an Independent Observer.

Editor THE AUTOMOBILE:

[238.]—Technically this year's Gordon-Bennett race has been, in some respects, very instructive. Above all else, it was a trial of tires, and the result is a tribute to the far-sightedness and ability of Michelin. In conversation with the engineer of one of the "eliminated" French cars, I was told that the adhesive coefficient of the new tires had been found experimentally to be roughly 30 per cent. greater than that of the corrugated rubber tread. These new tires have a leather tread about 2 inches wide let into the rubber, to which it is vulcanized. Three rows of steel studs, the heads of which project to prevent skidding, anchor the leather to the outer layers of fabric. At the double curve near La Goutelle I observed the cars during the last three rounds. The road-gripping ability of the French and Italian cars was certainly greater than that of their rivals.

The lessons to be drawn from the race are, I think, three in number: The importance of proper weight distribution on the axles, the necessity of the most thorough and painstaking tuning up, and the value of the leather tread and steel studs in tires.

The following is a fairly complete résumé of the histories of the various cars:

Richard-Brasier. Théry stopped 9 minutes 40 seconds changing all his tires early in the third round. He complained of losing time in passing the Americans on narrow stretches of road. *Caillois.* Motor smoked badly on first and second round, also slightly on fourth round. In all, stopped eleven times to clean fouled igniters. Both these cars were fitted with shock absorbers, and D. W. F. bearings in gear box and hubs.

F. I. A. T. Nazzari had no stops. He also complained of being obstructed by the American team. He states that no adjustment was made on his car during the race, and that it never missed an explosion. He handled his car regularly and cleanly on the curves, used wheel brakes on approach, and foot pedal on curve. Cagno had the belt drive of his lubricator constantly slipping until he stopped over two minutes in third round to tighten it. Lancia retired in the third round when leading Théry by about twenty-two minutes. Some object, probably a stone, dented his radiator, causing a leak. His efforts to plug it being unsuccessful, he drove on until overheating caused seizing in No. 3 cylinder. He drove beautifully. His car was not so well balanced as Théry's, the rear wheels skidding at lower speeds; but in spite of this handicap he took his turns fully four miles an hour faster, or about twenty miles as against Théry's sixteen. His method of bringing the car into its course after standing nearly across it was splendid. All his braking was done on the approach, and the power again applied just before pulling the car into her course. He deserved to win.

Mercedes. Jenatzy retired in third round. His motor smoked badly on the first round, and somewhat on the second. On the second round he took one corner at a speed second only to that of Lancia. Hieronymus retired in the second round, due to magneto troubles. In the first round his mechanic was making some adjustment under the foot-board, but the car was traveling well.

Burton was running poorly when passing Pontaumur on first round. According to report, his retirement in second round was due to fuel-feed trouble. Braun seemed to lack dash. He cut out his engine early on approach, and used motor as brake. Tire troubles delayed him twenty-five minutes in third round. Werner drove very well, but had tire troubles in second, third and fourth rounds.

De Caters, though driving splendidly, had tire troubles necessitating in all nearly an hour and a half's delay. His second circuit, done in 1 hour 39 minutes 14 seconds, was the second fastest made, and shows the power of the Mercedes cars had they not been handicapped. All these cars showed rather harsh spring suspension, producing a rather jerky action over small lumps. They heel perceptibly at corners, due to high center of gravity, probably, and skid rather markedly on the rear wheels.

De Dietrich. On the third round Duray lost about forty minutes attempting to stop a leak in the water tube leading from the radiator to the pump. Succeeding partially, he went from eleventh to sixth in the fourth round. On the first round he passed me on the level, doing splendidly. He took his curves at good speed, using his wheel brakes rather freely.

Wolseley. Both these cars seemed slow and unresponsive. They had neither accelerative nor speeding abilities. They had no accidents.

Napier. Earp drove well, but not very regularly. He skidded considerably with the rear wheels. The carburetor feed connection became loosened, allowing fuel to leak and necessitating several stops for supply. This car had wire wheels, and, with a few minor changes, is the same six-cylinder car which McDonald drove in Florida.

Pope-Toledo. Quigley retired in the first round. Lyttle made a good endurance run.

Locomobile. I understand that Tracy was handicapped by clutch trouble, owing to which he retired in the second round.

The highest speeds per round of 85.5 miles were as follows:

FIRST ROUND.

Lancia	54.	m. p. h.
Nazzari	51.2	"
Théry	51.	"

SECOND ROUND.

De Caters	51.9	"
Lancia	50.2	"
Théry	48.2	"

Highest speed for total course of 342 miles:

Théry	48.51	m. p. h.
Nazzari	46.69	"
Cagno	46.37	"
Caillois	45.96	"

C. H. TAYLOR.

Dalton, Mass.

A Successful Kerosene Burner.

Editor THE AUTOMOBILE:

[239.]—I greatly enjoyed Mr. Penney's article on his experiences with a steam car in the July 13 issue of THE AUTOMOBILE, and believing that such experiences are mutually helpful if described, offer some of mine.

I began my experience with steam by purchasing a second-hand car, that proved to be less of a "snap" than I had expected, but offered the same miscellaneous opportunities for personal instruction that Mr. Penney so truthfully describes. I came near becoming involved in litigation with the firm that sold me the outfit, but concluded that the same money that would pay for a course of law might possibly pay for a course of study in steam, and so took up the work of reconstructing the car.

I tried two kerosene burners, and failed with both of them, not because I did not know how to handle them, but because they were not properly built. One of these kerosene burners I used for gasoline with considerable success, and the other I pulled to pieces and rebuilt, doing the job so thoroughly that I do not believe the makers would recognize it if they saw it. After that it worked well, and was very docile and extremely hot.

There are two important points in connection with kerosene burners which, if given proper attention, will bring success, and if neglected will make such experiences as Mr. Penney's all too frequent. It took me some time to realize that kerosene requires *time* to vaporize—much more time than gasoline needs—and that if the vaporization is hurried by using excessive heat in a short or thin vaporizing coil, it is apt to undergo some degree of destructive distillation, which leaves a residue of tar or other deposit; whereas, if the vaporizing coil is long, so that the oil will have some leisure in its passage, there is no trouble in getting a clear gas without heating the pipes to redness. In the burner I use the generator or vaporizer tube is about fifteen feet long, of 1-8-inch iron pipe.

The second point is to arrange to have the mixing tube kept as hot as possible without igniting the mixture passing through it. I carried my mixing tube, which was formerly under the burner, right through the fire and down through the top plate of the burner. so that it became hot as soon as the fire was started; and the gas,

instead of going to the fire in a wet or oily condition, reaches the gas apertures dry and hot. The flame produced by this gas in my burner gives a blue flame of intense heat; I never saw anything to equal it from gasoline. Of course, iron tubing must be used for the mixer in this arrangement, as brass or copper is liable to weaken under the intense heat and give trouble. Care must be taken to prevent the mixing tube from becoming overheated and causing back-firing, but a wrapping of asbestos is a ready and efficient preventative, and a little experimenting will show just how much is needed.

If one is careless about closing the valves of a burner of this kind, it is possible that it may become flushed with raw oil, but it is an easy matter to put a drain cock into the bottom plate to free the burner if this happens. By exercising care, I have never had any trouble in this direction.

The pilot light I use is a kerosene blow torch. It requires about three minutes to get this started and two minutes more to get the main burner going, after which I can get 300 pounds of steam in my tubular boiler in ten to fifteen minutes; I have never required more than 40 pounds air pressure. With this combination, it is easier to burn kerosene than it ever was to burn gasoline with ordinary burners, and I can control it better. The controlling valves should always be on the oil side of the burner; never on the gas side.

For jets I use a common 1-8-inch tee, with the supply piped into the side opening and a plug in the end opening; through the latter a hole is drilled for the gas. In the other end is a blind plug, which can be unscrewed for the purpose of cleaning the jet with a sharp wire.

My first kerosene burner, in which I used gasoline, was fitted to the machine I bought. After a great deal of work, I got this car into good working order, and had no difficulty in disposing of it at a figure that reimbursed me for the original cost as well as for the cost of rebuilding. I believe the machine is still in service. I was well repaid for my labor by the information and experience gained, but I still had the fever, and soon began the construction of another car, this time building it from the ground up. It is on this machine that I use the kerosene burner described. The boiler is of the tubular type, 20 inches in diameter, and the engine has two cylinders of 3-inch bore and 3 1-2-inch stroke. The exhaust is carried to a tubular condenser under the hood at the front of the car. No attempt is made to prevent lubricating oil from getting into the boiler, and it does not seem to make any trouble. I use a pure mineral oil. Occasionally I put a very little sal soda into the water, and the combination seems to keep the peace pretty well.

Like Mr. Penney, I have had pump troubles, but I ended them by putting in a good-sized air chamber next to the pump on the supply side and another between the pump and the boiler. The first had the effect of equalizing the flow of water to the pump, and always keeping one cylinderful next to the pump, while the other prevents ramming in the pipes.

I use no water glass in this boiler; I have two thermostats, one controlling the water supply by means of a by-pass, and the other to shut off the fire in case the water supply fails. These seem to be sufficient. I have a water column and gauge cocks to verify the working of the thermostats, and thus far have had no trouble. On my trial trip, the water level did not vary half an inch. The water-level thermostat is an old idea, exploited and abandoned some forty years ago, being found effective only when kept free from deposit from the water, and in large boilers this deposit is a serious matter. The revival of the idea is due to the fact that the automobile boiler is not given to making deposits, and so the thermostat is a fairly reliable device. I have ideas for improvements along these lines, which I hope to put into practice before long, and also some ideas with regard to the condenser, but I may say that both thermostats and condenser are sources of great comfort in their present state.

I have found that a good "dope" for making joints in kerosene pipes consists of glycerine and litharge; pure glycerine makes a good lubricant for the stems of valves and regulators.

GEO. A. HENDERSON.

Decatur, Ill.

KEROSENE BURNING STEAM CAR BUILT BY GEORGE A. HENDERSON.

We thank our correspondent for his very interesting contribution, which will doubtless be found helpful by others who are working along the same lines. We are always pleased to publish letters of this kind, describing difficulties and explaining the methods by which they were overcome, whether the subject is steam, gasoline, shop work, tools, "wrinkles," or what not.

Glidden Tourists Accused of Racing.

Editor THE AUTOMOBILE:

[240.]—The enclosed editorial by the editor of the *Manchester Union*, the most influential and widely circulated newspaper in New Hampshire, speaks for itself.

It seems to me that there is much justice in what the editor says, as there is no doubt in my mind but what many of the Glidden tourists grossly violated the speed laws of the state of New Hampshire, whose roads are not in any way fitted for fast work, being extremely narrow, in many places soft, and in many places have sharp turns which are more or less hidden by the abundance of trees that line the way.

It seems to me that it would be for the best interests of automobiling if you comment on this editorial, remembering that last winter the state of New Hampshire enacted very liberal and reasonable speed laws.

In our little tours last summer through the state there was little complaint from the people and there was not one accident caused by the automobile party. The second day we provided a pacemaker whose duty it was to regulate the pace, and it is my opinion that if the Glidden tour is to be made a success and not a helter and skelter race across the country to the detriment of automobiling and the damage of the citizens of the various states it passes through, the pacemaker must be provided, whose duty it shall be to regulate the speed of the tourists, especially when passing through towns and villages.

I consider the hauling into court of the tourists a most unfortunate affair, and many of them deserved to be hauled into court in many other places, according to the published reports of the speed maintained. The race commenced from New York, and no doubt continued until they arrived back in New York. Such things do not promote the best interests of the automobile and automobiling, and I have taken it upon myself to back up the opinions

uttered by the editor of the *Manchester Union*, whose opinions are those of the majority of the citizens of the state of New Hampshire, according to what we can gather from people coming and going to and from Bretton Woods.

W. J. MORGAN.

Bretton Woods, N. H.

Following is the text of the editorial referred to by Mr. Morgan:

AS TO AUTOMOBILES.

We could not say anything about it until it had happened. To talk about it in advance would manifestly be to offer battle to a possible shadow. But now that the procession has passed and the tour of New Hampshire by the A. A. A. (Automobile Association of America) is completed, it is fair to comment on it. To our mind the whole thing has been an almost entirely unmitigated nuisance. The lives and property of perfectly helpless people have been seriously menaced, the laws have been wilfully disregarded and for no earthly reason other than to afford amusement to a lot of perfect strangers.

There seems no reason at all why the people of this community should be subjected to such things.

Automobiles are good things—and some of the people who own them or drive them are fit to be trusted with them. But to tell the thing exactly as it is, the most of them are not. They seem to think that they have some right to use the road to the exclusion or discomfort of other people—to say the least. And a few entirely disregard the danger they cause to the lives and property of the people who live here, who built the road they are using and who keep them in repair for their own use.

Take the record of their run from Concord here, eighteen miles in forty minutes.

Have they any right to do such a thing? Take the list of accidents they caused between Concord and Nashua. An old man thrown out and his arm injured at Suncook, while his horse ran away and smashed the wagon and harness to bits. At Nashua, or near it, a collision with a lumber wagon and the driver of the auto hurt; near Nashua a horse on a mowing machine badly frightened and cut up.

All these things without redress offered or obtainable from the man who owns the machine. We say it is an outrage, and if these people think of coming here another year, we hope the law against "speeding" and "scorching will be promptly and vigorously enforced against every offender. Let a few of them stay in jail for two or three days, and they and all the rest of us will be the better for it.

We like automobiles. We believe in them and enjoy them. We hope they have come to stay, and we see where great benefit will come to the state from their reasonable use. But to turn loose a lot of crazy mountebanks, bent on making a "record" over our roads, is a distinct outrage and ought to be stopped at once and for all. This is in the interest of the machine as well as in the interest of everybody else.

Comment upon the foregoing will be found in the editorial pages in this issue.

Automobile Shortens Distances.

Editor THE AUTOMOBILE:

[241.]—The writer has been interested of late in looking up different pamphlets issued by railroads, steamships and hotels, to note how long a trip is usually calculated as a day's journey from cities and popular resorts. As the automobile is only now coming into common use in the most distant of these resort localities, nearly all the local tours there are still based on the ground-covering ability of the average livery rig; and it is frequently interesting to see what their ordinary "standard" is.

Herewith I hand you a sample schedule of what is stated as "Delightful rides among the Catskills." It is certainly a novel thing in these days of fast traveling on both rail and road to see three days given to making a tour of 76 miles, or two days given to a tour of 57 miles. Especially so as these roads in the Catskills are very much better than the ordinary country road in New York State.

A THREE DAYS' RIDE.

Passing through Kaaterskill Clove and Stony Clove the first day and Bushnellville Clove the second day.

First day—	
Catskill to Palenville	10 miles
Palenville, through Kaaterskill Clove to Haines Corners	3 miles
Haines Corners to Tannersville	3 miles
Tannersville to Kaaterskill Junction	2 miles
Kaaterskill Junction to Phœnicia (through Stony Clove)	12 miles
	30 miles
Second day—	
Phœnicia to Shandaken	5 miles
Shandaken (through Bushnellville Clove) to Lexington	10 miles
Lexington to Hunter	9 miles
	24 miles
Third day—	
Hunter to Tannersville	5 miles
Tannersville to Haines Corners	3 miles
Haines Corners to Catskill Mountain House	2 miles
Catskill Mountain House to Catskill	12 miles
	22 miles
A side ride from Tannersville to Onteora Park and return to Tannersville, or by the other road to Haines Corners from Onteora Park, would add	4 miles
	26 miles

Making in all 76 miles in three days.

A TWO DAYS' RIDE.

Catskill to Cairo	10 miles
Cairo to East Windham	10 miles
(Remain at Lamoreau's Summit Mt. House over night.)	
East Windham to Windham	6 miles
Windham to Hensonville	2 miles
Hensonville to Hunter	7 miles
Hunter to Catskill (as above)	22 miles
	57 miles

A touring motorist would have no difficulty whatever in making the 76 miles given above as a "three-days ride" between the mid-forenoon and late afternoon of an ordinary summer's day; while the 57 miles given as a "two-days ride" could easily be made in one afternoon. It is 141 miles from Kingston to Binghamton over the Catskill Mountains, or nearly a half farther than the total distance given in this three-days (carriage ride); yet the Kingston-Binghamton trip has been covered many times in one day.

Just one other sample among many of the same kind. In an attractive little circular issued by one of the summer hotels at Randolph, N. H., there are short departments given to "walks," "drives" and "long drives." Under the latter head three-three-days' runs are scheduled, the first to Franconia Notch, the second to Crawford North and Glen, and the third to Dixville Notch. In other words, using this hotel at Randolph as a basis, it would take the average carriage party nine days to cover these three excursions, totaling altogether not more than 150 miles.

Under ordinary conditions of weather and roads, the automobile would cover these three three-days' carriage runs, totaling nine days of driving, easily in two days. If it were laid out as one complete course over ordinary country, it might be done in one day. Is not this a striking testimony of the ability of the automobile to outdistance all former methods of road travel, and set an altogether new standard?

ROBERT BRUCE.

Clinton, Oneida Co., N. Y.

Foreign News Notes.

A remarkable incident occurred at the hearing of a motor conviction at Guilford, England, when a member of the bench, Mr. Cowley Lambert, publicly protested against a sentence of his fellow-magistrates on a motorist. Mr. Lambert stated that while determined to put a stop to reckless motoring, in his opinion, the crusade against automobilists was being carried out without a vestige of fair play, and was bringing disrepute on magistrates and justice, while the Guilford Bench in particular was making itself a laughing-stock and by-word. Mr. Cowley Lambert then left the Bench and the convictions went merrily on. His peroration should, however, make his fellow magistrates pause.

The German Automobile Club is preparing the rules for next year's race on the Taunus course, where the Gordon Bennett event took place last year. The race will be open to all recognized clubs, who are at liberty to enter from one to five cars, though only club members may drive. The distance will probably be from 400 to 500 kilometers, but this reduction is outweighed by the fact that repairs may only be made by the driver and his mechanician, and that all extraneous help is prohibited. This will render competition very keen and make the race a great sporting event. Following immediately on the close of the new Homburg contest will be a 150-kilometer race for 40 to 60-horse-power touring cars, open to all members of recognized clubs. With this race and the Herkomer Week the German A. C. will have an extremely busy season.

What to Do When the Motor Balks.

By A. D. RIVER.

Concluded from page 33, issue of July 13.

IF there is no spark at all, proceed in the same way as when looking for a weak spark. Having made sure that the coil is giving a good spark, try a new plug in the cylinder, as the old one may be short circuited. If this proves to be the case, clean the plug or replace the porcelain as described in the first section of this article.

If there is a good spark in the cylinder, and still the motor does not start, test the gasoline. A hydrometer is best for this purpose, and the gasoline should test preferably 72 or 74 degrees in winter. In the summer almost any good carbureter will use gasoline that tests 68 degrees. A rough test may be made by evaporating a few drops in the hand; if it evaporates quickly and completely it is fit to use.

Water in the Gasoline.

The presence of water in the gasoline may be detected by opening the drainage cock or taking out the plug screw in the bottom of the carbureter, and drawing off a cupful of the fluid. The offending water, if any is present, will be contained in this. This should also be done to wash out any dirt that may have lodged in the carbureter, preventing the float valve from closing and causing the carbureter to flood constantly. While this flooding may not always prevent the motor from starting, it will make the mixture over rich and irregular in quality. Flooding of the carbureter may also be due to a leaky float, if the float is of the hollow metal variety.

To repair a leaky float it should be carefully dried of gasoline and soldered by an expert tinsmith, the smallest possible quantity of solder being used. Sometimes the float valve will leak, and must be ground to its seat with crocus powder and oil. It is occasionally necessary to take the carbureter apart for the purpose of removing dirt that cannot be dislodged by flushing. This is especially true of dirt that may have lodged in the spraying nozzle. In doing this either leave the adjustments undisturbed or, if that is impossible or inconvenient, mark them so they can be restored.

Adjusting Carbureter Float.

The weight of the float should be such as to bring the level of the gasoline a very little below the tip of the spray nozzle. If the level in the nozzle is too high, the tilting of the car may cause the gasoline to feed by gravity; and if too low the gasoline may not feed fast enough at high piston speeds. To ascertain the actual level it is necessary to take off the upper part of the mixing chamber and the top of the float chamber, so that the float may be moved up and down by hand, which will show whether or not the float valve shuts off the gasoline supply at the proper point. If the gasoline supply pipe is connected to the cover of the float chamber, as is the case with some carbureters, this plan cannot be followed, and it will be necessary to disconnect the carbureter entirely, set it level, and pour in gasoline until the float valve closes. A little cautious tilting of the carbureter will then show how much the spray nozzle must be lowered to bring it to the level of the gasoline in the float chamber, this, of course, roughly representing the difference of level between the two.

Failure of the carbureter to prime properly indicates a stoppage of the gasoline supply pipe. This may be due to fluff gathered from waste used in cleaning, or to other accidental causes, such as insects in the gasoline. It is sometimes necessary to disconnect the pipe from the tank to expel the obstruction. Care should be taken not to have any lighted matches or other naked flames around when this is done.

An Excess of Gasoline.

After an investigation of this sort it is frequently necessary to get rid of an excess of gasoline in the mixing chamber. This can be done by turning the engine over several times with the relief cock open and the spark fully retarded. Never get the face or a hand within range of the relief cock when this is being done, or there will be danger of getting badly burned when the engine starts.

On cold days the engine may fail to start simply because the gasoline will not vaporize readily. This difficulty may be overcome by wrapping around the carbureter cloths rung out in hot water or by squirting a few drops of gasoline through the pet cock usually found in the head of the cylinder. On many foreign motors these cocks have on them little funnels about half the size of a thimble, measuring the proper quantity of gasoline for this purpose. Never, on any account, warm the carbureter with a torch or flame of any sort.

Carbureter Seldom Gives Trouble.

It should not be supposed that it is frequently necessary to pull the carbureter to pieces in the manner described. With a good modern carbureter and reasonable care in straining the gasoline, the carbureter is almost the last thing to be touched in case of trouble, and it seldom requires anything more than an occasional draining from the bottom. Slight changes of adjustment, for different grades of gasoline or for changes in the weather, may be made by turning the mixture needle or lever slightly one way or the other, first marking the original position. Try the effect of each change. Such changes of adjustment should not be made until everything short of dissecting the carbureter has been tried, as the carbureter is always carefully regulated before it leaves the factory.

An engine may start with reasonable facility, but run weakly or miss explosions. The causes of such behavior are rather numerous. Explosions irregularly missed point to a weak battery, defective insulation or imperfect electrical connections, and sometimes to short-circuiting of the plugs. If the explosions are regular but weak, a probable cause is poor compression. This is very likely to be due to leaky valves, though the leak of cylinder oil will produce the same effect. The piston rings may be clogged by burned oil, so that they cannot keep the piston tight in the cylinder; or the piston rings may be broken or badly worn. There may be a leak around the spark plug, or under the cylinder head, if it is of the separate type and bolted in place. The first of these causes, leaky valves, is the most likely to occur, and it is usually the exhaust valve that is in trouble.

How to Grind Valves.

When a valve is to be ground the first thing to do is to make sure that none of the emery or other powder used for the purpose can get beyond the valve and into the cylinder. For this purpose a bunch of waste may be stuffed into the cylinder opening, a string being tied to the waste to prevent it from getting into the cylinder. The valve spring should then be slipped loose and the key removed so that the valve may be lifted. The grinding is done with emery of graded fineness, medium coarse emery being used if the valve is badly pitted or warped. Usually, however, but little grinding is needed, and only the finest flour emery should be used. The emery should be mixed with light machine oil and a little applied at a time. The valve should be rotated back and forth on its seat by quarter turns of a screw-driver, being by degrees slowly turned completely around. Emery and oil should be added occasionally to avoid metal to metal contact, and only light pressure should be applied. At the conclusion of the process both valve and seat should show dead smooth surfaces, without gloss or streaks. The last operation is to wash the parts, very carefully, with gasoline.

The inlet valve may be ground to its seat in the same way and its tightness tested by pouring a few drops of gasoline on the valve when on its seat. If the gasoline does not go through, the valve is tight.

Clogged Piston Rings.

If the piston rings are clogged they may be freed by injecting a spoonful of kerosene into the cylinder and turning the engine over a few times. This clogging of the rings can be easily avoided, however, by injecting a few drops of kerosene into the cylinder after every run. Gasoline is not well suited for this purpose unless the en-

gine is cold, as it is immediately evaporated.

The other causes of leakage require no explanation; it may be remarked, however, that the best packing to use under the cylinder head is a special form of asbestos sheet with wire gauze imbedded in it; the gauze prevents the blowing out of the asbestos. If this is not available plain asbestos sheet may be used, after coating it on both sides with flake graphite or else with shellac. The graphite prevents sticking, while the shellac helps to make the joint tight. Unfortunately, the two advantages cannot be combined. If the joint will remain tight without the use of shellac, so much the better. Sometimes a compromise can be made by using shellac on one side and graphite on the other, so that the removal of the cylinder head need not destroy the packing. When cutting new packing for a cylinder head, be very careful to cut out all the holes necessary for the circulation of the water, and also that the packing does not interfere with the valves.

Weakening of Valve Springs.

A cause of imperfect running which does not show itself except at high speeds is the weakness of the valve springs, so that they do not return the valves to their seats with sufficient rapidity. The automobilist should learn to judge by feeling when his valve springs are at the proper tension, so that he will have a ready means of ascertaining whether or not they are the cause of trouble. The rapid weakening of valve springs is most frequently caused by the overheating of the engine through the stoppage of water circulation. The springs are, however, apt to weaken gradually in the natural order of things.

Replacing the 2 to 1 Gears.

Another cause of low power is failure to put the two to one gears together correctly when the cam shaft has been dismounted. Usually center punch marks are made in the sides of these gears, and these marks should be brought together when the gears are meshed. If there are no marks it is a safe rule, in most cases, to assemble the gears so that the exhaust valve closes exactly at the end or very slightly after the end of the exhaust stroke, regardless of when the valve opens. If the inlet valves are operated by a separate cam shaft they should be timed to open exactly when the exhaust valve closes, regardless of when they themselves close. Sometimes a cam will shear off its key and slip around on the shaft, thus giving incorrect timing of the valve.

A clogged muffler will cause loss of power, and this cause of trouble may be detected by cutting out the muffler in some way. With a muffler cut-out valve this is a simple matter; if there is no such valve the muffler or the exhaust pipe may be disconnected. With most mufflers it is a good plan to inject an occasional dose of kerosene to clean them out.

Faulty Mixture Causes Trouble.

In addition to the causes already mentioned, a faulty mixture, if not too much out of the way, will cause the engine to run weakly, but without missing explosions. A weak mixture will cause explosions in the muffler, while an over rich mixture will make a black smoke in the exhaust. A mixture may be unnecessarily rich without making smoke, but this cannot be remedied except by the careful adjustment of the carbureter.

Among the puzzling causes of misfire are broken or loose wires which fail to make contact on account of the vibration of the car; and a loose battery connection has been known to produce the same effect from the leaning of the battery cells against the wires when going up a hill.

If an engine is a multiple-cylinder one, it is always possible to tell whether the trouble is in the mixture or in the ignition by noting whether all the cylinders or only some of them miss explosions. In the latter case the trouble is usually traceable to the ignition. When all the cylinders miss explosions the trouble may be either electrical or in the mixture. If only one or two cylinders miss, the trouble will unquestionably be found in the vibrator, the wiring, the plugs or the distributor. One may readily determine which cylinders are missing by holding down the vibrator of one coil at a time. Where this cannot be done, as when a non-vibrator coil is used, the same result may be arrived at by short-circuiting all the plugs except one. This operation should be repeated until each cylinder has been tested individually. When high tension magneto ignition is used the method of testing just described will be suitable.

In conclusion, the beginner is cautioned on no account to neglect a small trouble simply because the motor will still run. If it is simply a case of misfire it is probably not serious, but the general rule is that a small trouble, if uncorrected, leads to a more serious one. If any unusual noise is heard, or if anything works hard that should work freely, investigate at once, and do not go on until you have located the trouble and corrected it. In this way you will get your experience cheaply, and will get far more enjoyment out of your machine.

A new authority on automobile fashions has appeared upon the horizon. The irrepressible Mr. Punch has authoritatively stated that passengers on motor 'busses need not wear goggles.

A traveling salesman out of Terre Haute last week substituted an automobile for regular train service, traveling 325 miles in four days, calling on seventy-five customers and returning home forty hours ahead of train schedule time.—*Paris (Ill.) Gazette.*

Another Captain Autoist.

When the big freighter *Wray Castle* makes port and docks, Captain P. Watson casts his eye over the landscape and makes mental note of the condition of the roads. Then he looks contentedly at a shapeless something covered with a tarpaulin on deck, and gives an order or two. In a twinkling the long arm of a derrick is brought over the curious looking heap and some one carefully lifts off the tarpaulin and reveals a smart, shining little automobile, all ready to run as soon as it feels the road. Slings are put under it and the tackle hooked on; and in a couple of minutes more the little machine is ashore and speeding away with the Captain at the wheel.

The Captain of the *Wray Castle* has had his car, a Baby Peugeot, for a year and a half, and takes it with him wherever his ship goes. Leaving New York early in July, the next port was to be Algiers, then Port Said, Aden, Singapore, Hong Kong, Shanghai, Moji Kobe (Japan) and Yokohama. At the latter place the outward voyage ends and the ship returns by the way it went, touching at the same ports. At every port the automobile is hoisted ashore and the country explored, and Captain Watson has had many amusing experiences in places where automobiles are seldom seen. Several of the wealthy natives who were invited to occupy a seat beside the nautical chauffeur became enthusiastic over the machine and wanted to buy it on the spot; and the Captain relates one story of a native nobleman of Java who solemnly offered his two best wives for the car.

When at sea Captain Watson gets almost as much pleasure from his car as when ashore, for his delight is in overhauling, cleaning, polishing and adjusting its machinery. His chief engineer has naturally taken a great interest in the machine, and together they keep the machine in the very pink of condition. As soon as the car is hoisted to the deck of the ship, the body is removed and stored in a spare cabin, while the chassis is lashed to the deck and covered with a tarpaulin. Half an hour suffices to complete the operation of getting the car ashore, or on board, so that no time is lost in this work.

Captain Watson says that he has had not the slightest trouble of any kind with the machine since the first time he essayed to take it apart. Being anxious to understand his machine thoroughly, even to the minutest details, he pulled everything down, examined everything and then put the car together again, to the best of his ability. When the operation was finished, however, the captain found that he had nearly enough parts left over to make an another car, and it required the combined efforts of Captain and chief engineer for the remainder of that stage of the voyage to get everything in place.

First Motorcycle Race Meet Held in New York Is a Brilliant Success.

HOT finishes to closely contested events marked the first race meet for motorcycles exclusively that has been held in the vicinity of New York City, and though spectators were not present in large numbers, those who were there went away satisfied that they had witnessed a fine afternoon's sport. The meet was held under the joint auspices of the New York Motorcycle Club and the Federation of American Motorcyclists, with the sanction and under the rules of the latter, on Saturday afternoon, July 22, having been postponed from a fortnight earlier on account of rain. The track used was that of the Parkway Driving Club, located at the intersection of Coney Island Boulevard and Kings Highway; and though it afforded but a half mile circuit and was as flat as the brim of a straw hat, and rather dusty, the little machines got up a speed that looked to be terrific and negotiated the turns at hair-raising angles, the skill and pluck of the riders arousing genuine admiration.

The big event of the day was the five miles F. A. M. Eastern District championship, and it was well known before the start that the racing would be as hot as the riders could make it. Though there were seven entries, the real contest lay between J. P. Bruyere of Passaic, N. J., a Frenchman, riding a 5-horsepower Curtiss; Oscar Hedstrom of Springfield, Mass., designer of the Indian Motorcycle, and S. T. Kellogg, of Bridgeport, Conn., the last two riding 3 1-2-horsepower Indians; all three machines had double cylinder engines. The other entries were all regular road machines of 1 3-4 horsepower.

Kellogg made the best start, his machine starting promptly and picking up speed with such rapidity that a lead of twenty yards had been gained before the others had fairly got under way. Hedstrom followed Kellogg closely, but was soon caught by Bruyere and remained in third place throughout the race. Bruyere had his work cut out and went after Kellogg in dead earnest; but it was a long, hard pull. Kellogg's machine held the turns closely and well, while the Curtiss ran rather wide and lost something at each curve. Round and round they flew, Bruyere sometimes gaining a little on the flying Indian and sometimes losing a little; but superior horsepower gradually told, and it was seen that the Curtiss was closing the gap. But the surprising sprint of the Indian again and again came into play, and when the riders entered the last half mile the result was still in doubt and excitement was red hot.

In the first part of the last circuit Bruyere crept a little closer to Kellogg; but in the back stretch the Indian held its own; on the last turns, however. Bruyere made a remarkable spurt that brought him abreast of Kellogg, and they entered the home stretch almost wheel to wheel. Then Bruyere shot several lengths ahead and looked like an easy winner, when the Indian again made one of its lightning sprints and for a few brief seconds it looked as if Bruyere would be overhauled before the tape was crossed. But his lead was too great, and though Kellogg cut it down to about two lengths and was gaining at every turn of his engine, Bruyere crossed first, amidst the yells of the spectators.

Bruyere is a clever rider; he recently made a mile in 1:06 on the Morris Park track, using the machine with which he won the F. A. M. championship. The time for the five miles was 7:33 3-5—fast going, considering the track conditions.

Bruyere also captured the one-mile F. A. M. Eastern District championship after a hot struggle. As in the five-mile event, he was led at first by Kellogg, whose lead he gradually cut down, winning by a small margin with Kellogg second and Hedstrom third, the same order as in the long race. Hedstrom's machine did not appear to work quite as well as Kellogg's in either event.

An event that caused a good deal of amusement and at the same time excellent sport, was the three-mile "hang together" race. The contestants were required to follow a pacemaker, keeping within fifty yards of him until a signal was given, when the real racing began. The pacemaker hit up a good hot clip, giving the slower machines some trouble to keep within the prescribed distance; and the breakaway signal was not given until the racers were rounding into the home stretch for the last time. Then the pacemaker dropped out and there was a grand sprint for the tape. Hedstrom, Bruyere and Kellogg at once shot out from the bunch of slower machines and fought it out to the tape. The sprinting Indian ridden by Hedstrom was a little too quick, however, and landed in first place with Bruyere a close second and Kellogg third. Fourth place was taken by F. M. Dampman, of New York, there being four prizes given.

The one-mile novice race, with which the meet opened, brought out eight starters, all mounted on regular road machines. The contest for first place was exceedingly close between F. O. Ericson, of Brooklyn, and R. H. Bartsch, of New York, the former riding a Reading Standard and the latter an Indian, both of 1 3-4-horsepower. The manner in which the novices held the turns and jockeyed each other was worthy of experienced racing men, and it was anybody's race right up to the tape. Ericson, however, had just a shade the best of it, and won by less than a length, with Bartsch second and Walter Jones third.

During this race occurred the only accident of the meet. A. A. Hoyt, of Brockton, Mass., fell while rounding the turn into the home stretch and broke his collar bone. A physician from the crowd attended to him and he was then taken away in an automobile. During the one-mile championship event Dampman fell, but was not hurt; he participated in subsequent races in which he was entered.

Ten starters lined up for the two-mile speed-judging contest. The object of this event was to ride the two miles as nearly as possible in 4 minutes 10 seconds, or at the rate of a mile in 2:05. It was most amusing to see the different ideas of speed shown by the riders as they strung out over the track; and it was also noteworthy that most of them guessed on the slow side, the winner, F. M. Dampmann, of New York, riding a 1 3-4 horsepower Indian, making the best ride in 4:19. F. W. Horenburger, of New York, riding a 3-horsepower Marsh, tied for second place with R. H. Bartsch, of New York, on a 1 3-4-horsepower Indian; and the two were sent off for a half-mile run to decide the tie. Horenburger got the best of it, leaving Bartsch in third place.

In the three-cornered pursuit race, which was run in three heats and a final, three riders were placed at equal distances apart around the track, and all started at once. They were then to ride until one of the machines overtook the other two, or until seven miles had been covered, when the man making the best time would be given first place. None of the heats went to the limit, however, though the event proved to be unexpectedly interesting. The heats were won by R. H. Bartsch, of New York, 1 3-4-horsepower Indian; E. W. Goodwin, of Brooklyn, on a similar machine; and F. O. Ericson, of Brooklyn, on a Reading Standard of 1 3-4 horsepower. Bartsch was soon out of it, so far as first place was concerned, and Ericson and Goodwin made a fine struggle for the Columbia bicycle which was offered as the first prize. Ericson gradually crept up on Goodwin, however, and overtook him, though it took nearly five and a half miles to do it.

Before the start of the final Goodwin protested Ericson's machine on the ground that it was not a regular stock roadster, only stock machines being eligible for the event. The protest was not sustained, however, the prize going to Ericson, who was complimented on his clever riding in all the events in which he entered. His machine showed remarkable speed for a road machine, and his win was a popular one.

The only race for machines all of the same make was the two-mile race for the Marsh cup, the entries being limited to Marsh motorcycles, these machines having 3-horsepower motors. After a good race F. W. Horenburger arrived first at the tape, closely followed by Thomas Chadwick, of New York. A. Kreuder, of New York, was third.

After the racing was over, many persons expressed surprise at the fine sport that had

been put up, and many expressed the belief that motorcycle racing would become very popular. It was a pleasure to note that every race had a good entry list, and that by far the greater part of the entries turned up when the bell was pulled. There were no aggravating breakdowns or sulking motors, and there was a total absence of any tendency on the part of the contestants to split hairs. Every one seemed bent on racing for all he was worth, and every one did it to the entire satisfaction of the spectators.

Allan W. Campbell, chairman of the F. A. M. Competition Committee, was referee; the judges were Joseph Oatman, president of the Autocycle Club, of New York; Daniel M. Adee, president of the Century Road Club Association, and E. W. Carritt, of the F. A. M., Brooklyn. The watches were held by R. B. Bach and R. Kelsey. of the Parkway Driving Club; E. Gerbereux, A. C. C. of New York, and J. M. Gentle, of New York. Charles T. Earl was starter; M. E. Topel, N. Y. M. C. C., scorer; and R. G. Betts, chairman of the F. A. M. managing committee.

Following are the summaries:

One-Mile Novice, open to single cylinder full roadsters—Won by F. O. Ericson's 1 3-4-h.p. Reading Standard; R. H. Bartsch's 1 3-4-h.p. Indian, second; H. Jehle's 1 5-8-h.p. Spiral, third. Time, 1:44 1-5.

One-Mile, Federation of American Motorcyclists' Eastern District Championship—Won by J. P. Bruyere's 5-h.p. Curtiss; S. T. Kellogg's 3 1-2-h.p. Indian second; Oscar Hedstrom's 3 1-2-h.p. Indian third. Time, 1:34.

Two Miles, for Marsh motorcycles only—Won by F. W. Horenburger, N. Y. M. C. C.; T. Chadwick, New York, second; A. Kreuder, N. Y. M. C. C., third. Time, 3:42 3-5.

Three-Mile Hang Together Race—Won by Oscar Hedstrom's 3 1-2-h.p. Indian; J. P. Bruyere's 5-h.p. Curtiss second; S. T. Kellogg's 3 1-2-h.p. Indian third. Time, 6:00.

Three-Cornered Pursuit Race—Won by F. O. Ericson's 1 3-4-h.p. Reading Standard; E. W. Goodwin's 1 3-4-h.p. Indian second; R. H. Bartsch's 1 3-4-h.p. Indian third. Distance, 5 1-3 miles.

Two Miles 2:05 Speed Judgment Contest—Won by F. M. Dampmann's 1 3-4-h.p. Indian. Time, 4:19.

Five-Mile F. A. M. Eastern District Championship—Won by J. P. Bruyere's 5-h.p. Curtiss; S. T. Kellogg's 3 1-2-h.p. Indian second; O. Hedstrom's 3 1-2-h.p. Indian third. Time, 7:33 1-5.

Automobiles at Lewis and Clark Exposition.

By WALDON FAWCETT.

PORTLAND, ORE., July 12.—The automobile interests rank as one of the tardiest classes of exhibitors in the matter of completing their displays at the Lewis and Clark Exposition now in progress here., the Olds Motor Works of Detroit being the only concern which has an exhibit fully installed. This firm shows all its various products, including the standard runabout, touring car, delivery car and ten passenger wagonette.

The automobile exhibits at the Portland Fair have been assigned to the Transportation and Electricity Building. This is the longest building on the grounds, being 500 by 100 feet in size, with two wings, each 100 by 100 feet, which were added to the structure as originally planned because of the remarkable demand for space.

The Fair is being held in the Pacific Northwest, where a rapidly developing country is as much of an attraction as the show itself. It is drawing from the East a well-to-do class of travelers who do not usually attend expositions. This latest addition to the list of international exhibitions is drawing from the 5,000,000 people of California and from the Pacific Northwest thousands of sightseers who have never before visited an exposition. The fact that these men are ranchers, bonanza farmers, salmon packers or miners does not detract from their eligibility as purchasers of automobiles. The fascination which an automobile can hold for a man who has made his "strike" in the West has been eloquently attested by the liberal patronage which has been bestowed during the past few weeks upon the livery vehicles and sightseeing automobiles in Portland.

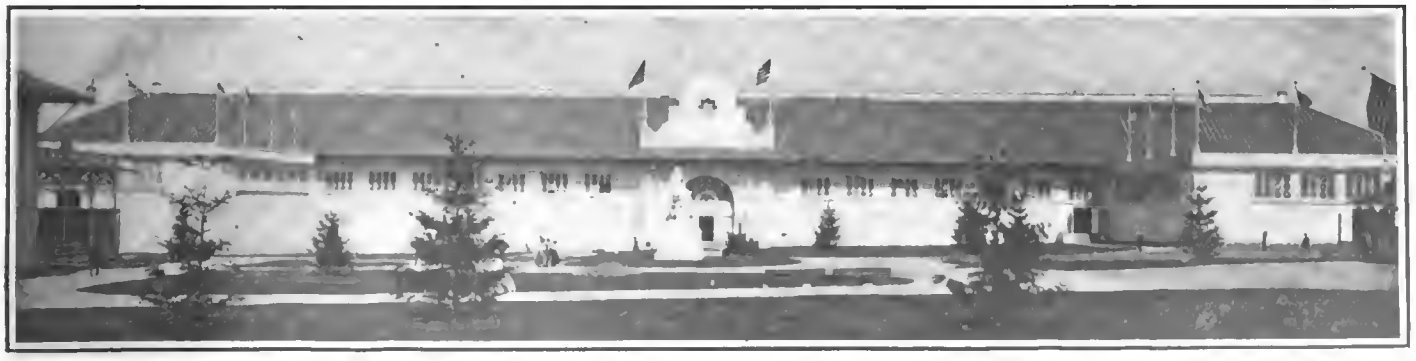
That these men do not allow price to constitute an obstacle if pleased with a machine can readily be appreciated by any person who is conversant with the character of those who are reaping the golden harvest of Northwestern development. The possibilities of the Pacific Northwest as an automobile market would seem to be indicated by the fact that the banks of Oregon have on deposit savings averaging $2,300 for every man, woman and child in the State.

Although the regular automobile exhibits at the Exposition have not materialized very extensively, interest in automobiles is strong in the metropolis of the Northwest. This has been fostered by the Portland Automobile Club, which has already given one race meet and several parades since the opening of the Fair. The fact that automobile stage lines are being introduced in several localities in Oregon, and that the Portland Auto-Dispatch has captured a considerable share of the heavy trucking business on the Exposition grounds and in the city of Portland, is serving to still further arouse interest.

A number of the general exhibitors at the Exposition are showing automobile accessories or utilities. The General Electric Co. of Schenectady, N. Y., for instance, in its immense display gives place to a mercury arc rectifier of 30 amperes capacity for charging storage batteries for automobiles. On the Exposition grounds a number of motor boats are employed to convey visitors to and from the United States Government Building which is situated on a peninsula jutting out into a 220-acre lake and to reach which entails a journey of more than half a mile.

The introductory lesson paper issued by the Correspondence School of Automobile Engineering, of Akron, O., contains a very comprehensive dictionary of automobile terms, and starts the pupil with a means for making clear any statement he does not understand through unfamiliarity with the phraseology used. Where it is considered necessary, the definitions are illustrated. Ten questions follow the dictionary, and these questions the pupil is expected to answer in a satisfactory manner before he receives the second lesson paper.

A battery, properly speaking, is a collection of cells, though a single cell is commonly and incorrectly called a "battery."



TRANSPORTATION BUILDING AT LEWIS AND CLARK CENTENNIAL EXPOSITION, PORTLAND, OREGON, WHICH HOUSES AUTOMOBILE EXHIBIT

Orphans' Outings in Various Sections.

THE idea of setting aside a day to be known as Orphans' Automobile Day, which originated with the New York Motor Club early in the season, seems to have met with general favor. The New York club, as will be remembered, gave to a large number of the little dependents of several metropolitan institutions a most enjoyable ride and day's outing on June 7, since which time clubs throughout the country have followed this example and have treated the orphans of their respective communities with similar excursions.

Only a few days ago the Cleveland Automobile Club tendered to the poor children and orphans of that city a day's entertainment which proved to be a decided success. The committee in charge succeeded in getting together 175 cars, and with these more than 1,000 youngsters were conveyed to Gordon Park, where luncheon was served.

The reports published in the daily papers that the club had to resort to the street cars to transport the children is incorrect. They were all carried in automobiles, and to accomplish this it was necessary for many of the cars to make more than one trip. On this account no parade was attempted, and at no time during the day were there more than a dozen cars in line.

Owners had their cars at the club rooms in the Holleden Hotel early in the day, and as fast as they arrived they were dispatched to the different institutions, with instructions to take on a load, give the children a good ride through the parks and boulevards, and then, if possible, return for another load. Each car was numbered and every child carried a card showing to what institution the child belonged, and the number of the car.

At 11.30 o'clock A. M. all assembled on the golf grounds in Gordon Park, and it made a sight worth going miles to see. More than two hundred little girls from a Jewish institution were dressed in blue uniforms, while the boys from this school wore a somber drab. The girls from another school were all in pink, while those from still another were in white.

Through the courtesy of the daily papers a well-filled luncheon box was served to each child, and in groups under the trees they enjoyed the best picnic of their lives. Afterward all gathered around a band stand and joined in singing "America," and then they scattered for a romp, many of the boys heading for the bathing beach, where those who wanted to "go in" were provided with bathing suits. At four o'clock the "first comers" were on their way home, while those who came late were allowed to play until cars could return and get them.

There were no accidents, and only one little maiden became separated from her companions and was left after the others had gone. She was comforted by more candy and taken home by a policeman.

Then from the far South comes the report of the parade and entertainment given the inmates of Mobile (Alabama) asylums, which also afforded much pleasure not only to the children, but the older ones who had charge of the event.

About twenty-five cars took part in the parade, and after a ride through the principal streets of the city the cars were headed for South End, which is situated at the end of the Bay Shell Road, one of the most beautiful drives in the South. This famous road leads along the Bay of Mobile, and is lined with magnolia trees, which form an almost continuous arch for its entire length. Mobile county will soon acquire the road, and extend it for thirty-five miles to some of the coast towns.

At South End the children were entertained by the management of the Inn, and, after enjoying the many dainties furnished, the home run was begun.

It is the club's intention to continue these rides weekly until all of the orphans in the city have been given an outing.

Again, but a short time ago, Denver dropped into line, and the little ones of that Western city were given the time of their lives through the courtesy of the Colorado Automobile Club.

Still other clubs in various sections of the country are planning for the little tots of their respective towns similar outings for the near future.

A Catalogue for Engineers.

As manufacturers of automobiles and parts improve their product, it is but natural to expect that everything else connected with the business should improve at the same time; and there is no reason why trade literature should be an exception to this rule. Catalogues, circulars and other advertising publications have begun to show the effects of an appreciation of the fact that prospective purchasers are not looking for literary essays when they send for catalogues, but for information; for hard facts, not claims and opinions. A concern that shows a hearty interest in providing what is needed in this line is the Garford Company of Elyria, Ohio, which manufactures a limited line of automobile parts.

Circular No. 12 has recently been sent out by Hayden Eames of the American Trust Building, Cleveland, Ohio, who is sales manager for the Garford Company. This circular or catalogue consists of a series of double sheets on which are printed reproductions of drawings of the various parts, the larger drawings being 12 inches wide and 21 inches long. These drawings are of the type known to engineers as "assembly drawings," showing the various parts in position, drawings of this kind being of particular convenience to the engineer because he can tell by actual measurements whether the design is what he needs. If any of the component parts of the assembly are required, they may be ordered by number, each separate part being plainly numbered for this purpose. The drawings are accompanied by short descriptions explaining the main points and giving information that cannot conveniently be conveyed by means of the drawings, and also stating what materials are used, and so on. There are no superlatives used, and no good ink is wasted in unnecessary verbiage.

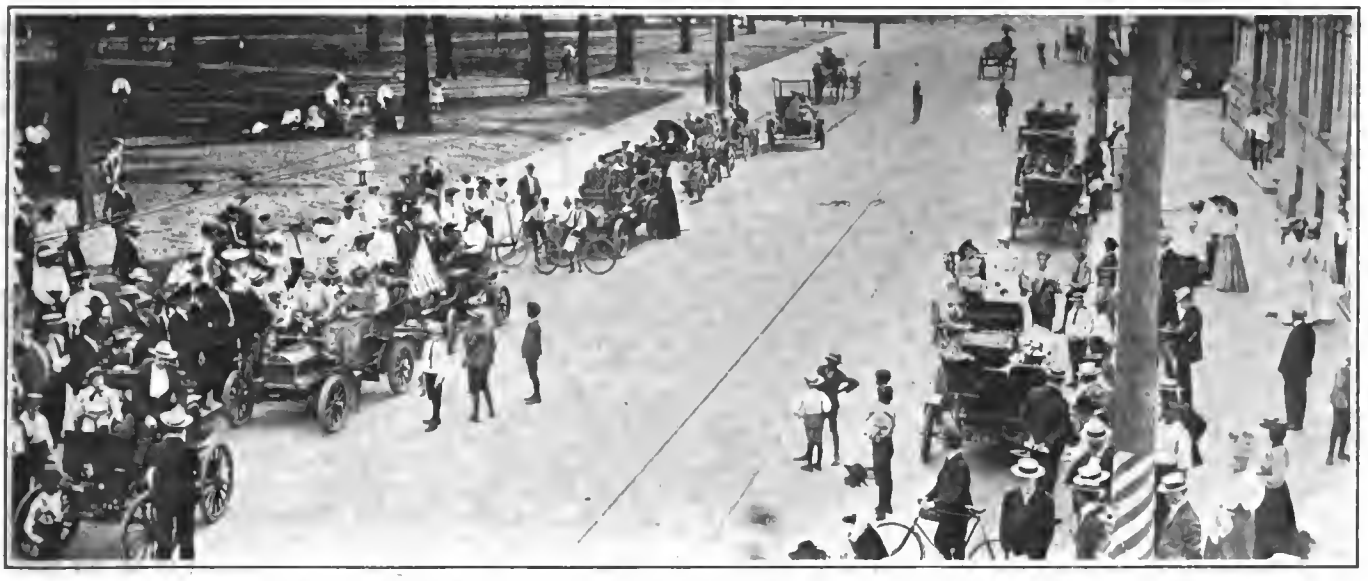
The drawings show rear axles in several styles, complete with differentials and bevel driving gears, some with plain bearings and others with ball bearings, the Garford Company having abandoned rollers for this work; I-beam front axles with steering pivots, the axle forgings being composed of nickel steel; transmission gears of the sliding type; leather faced cone clutches; propeller shafts with universal joints, and steering gears. It is certainly a good sign when the manufacturer's natural inclination to say what he thinks—and every one knows what that is—about his own goods is subordinated to his interest in making things easier for his customer; and it is not difficult to believe that the customer will show his appreciation in the manner most pleasing to the manufacturer.

A new method of testing the viscosity and the internal frictional resistance of lubricating oils at various temoeratures has been devised by the R. Gebruder Korting Electrical Co., Limited, of Berlin, according to a report made by United States Commercial Agent Ernest L. Harris, of Eibenstock, Germany. The testing apparatus consists of a circular chamber in which rotates a sort of fan, resembling the vanes of a centrifugal pump. From each side of this chamber rises a pipe, the pipes connecting with the chamber, which is set on edge, at the center of its height. The oil to be tested is poured into the apparatus until it fills the chamber and rises a little distance into the pipes, which are fitted with glass tubes so that the oil can be observed. Means are provided for heating the oil chamber. The vaned wheel is rotated by an electric motor. The power absorbed by the motor, in combination with the height of the oil in the tubes and the temperature of the oil, gives the necessary data for comparing samples of lubricants.

Our town has eleven autos in use. Where is the town of its size to beat it? The following are the possessors: L. C. Blood, 2; Dr. F. J. Dudley, 2; J. M. Shively, 2; R. C. Blood, 1; Sam Havely, 1; U. F. Rader, 1; P. Fisher, 1; Reed Chambers 1.—*Monticello (Ill.) Bulletin.*

The farmers have been kicking because the automobiles have been frightening their horses. Like the bicycle, the horseless carriage has come to stay. The farmers will soon be riding in them.—*Exchange.*

CLEVELAND AUTOMOBILE CLUB'S ORPHANS' DAY—CHILDREN SINGING "AMERICA" WITH BAND IN GORDON PARK.



MOBILE, ALABAMA, AUTOMOBILE CLUB'S ORPHANS' PARADE—ARRIVAL AT SOUTH END ON BAY SHELL ROAD.

COLORADO AUTOMOBILE CLUB'S ORPHANS' OUTING—HAPPY LOT OF LITTLE ONES ON ARRIVAL AT CITY PARK, DENVER.

THE AUTOMOBILE

VOL. XIII. No. 4

Published every Thursday by

THE CLASS JOURNAL CO.,
Flatiron Building, Madison Square,
NEW YORK CITY.

Cable Address - - - - Autoland, New York
Long Distance Telephone - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2.00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 5 o'clock p. m. Monday for the issue of Saturday following.

Entered at New York N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies Printed in 1904, - - -	**639,300**
" " **This Issue, - -**	**14,000**
" " **Since Jan. 1, -**	**419,500**

Effect of Glidden Tour on Outsiders.

The success of the Glidden tour, as viewed by the automobilists, is offset not a little by the sentiment left in the wake of the string of thirty cars among the people living along the route of the tour. With every intention on the part of the donor of the valuable trophy to encourage the best use of the automobile, and on the part of the tour commission to conduct a competition that should make for the lasting good of the pastime and industry without imposing any unnecessary and disagreeable restrictions or burdens upon the participants, the illegal speeding of a number of the cars developed early and continued throughout to the conclusion of the tour in New York last Saturday evening. That these intentions were not carried out and the desires of the donor and the officials not loyally seconded and supported by all of the contestants for the trophy is unfortunate, for the effect of racing over the country roads and through the village limits in several states can be no less than to convert the friendly feeling of the people into disapprobation and perpetuate such opposition to automobiling as already exists.

While passing through New Hampshire the tourists were saluted with hand and voice by smiling men, women and children gathered in front of farmhouse, summer resort and town residence doors to watch the vehicles go past. It was made unmistakably evident that the residents took great interest in the occasion and welcomed the automobilists to their section of the country. Some went so far as to decorate their houses with flags in honor of the visit, others to provide a band to serenade the tourists, and yet others to toss flowers into the cars as they passed. Such hospitality and confidence ought not to have been betrayed, yet the way a number of the cars rushed over the narrow and crooked roads, every turn of which was concealed by heavy growths of timber and brush, has led to not a little deserved criticism by the local press.

The incidents of the arrest of half a dozen tourists in Worcester for alleged speeding through Leicester, and the undignified demonstration as the automobilists took their departure, was most unfortunate. The effect already is made apparent by the remarks of the constable who made the arrests to a local representative of THE AUTOMOBILE:

"The automobilists have acted mean toward me," said Chief Quinn last Friday, "and I will now perform my duty to the very letter of the law. I have received my orders from the selectmen, and I intend to obey them if I have to bring every automobile driver that goes through town into court. I have made a practice of summoning only those who exceeded a rate of twenty miles an hour. All of the Glidden tourists summoned exceeded this rate. The law allows twelve miles in the town proper and fifteen miles to the lines. Now, any driver exceeding twelve miles an hour will be summoned."

Somewhat similar sentiment exists in other cities through which the tour passed, as is shown by the editorial reprinted by the *Manchester Union*, in the Letter Box department in this issue. No less than twenty-two names were on the list of the Leicester constable for running at more than the legal limit, but only eight summonses were prepared for service upon those who were timed at a rate of more than twenty miles an hour. It seems strange that most of those who were arrested should be drivers who maintained the most moderate pace throughout the 870-mile tour, but the dignified way to have acted, it seems, would be to have fought the cases to the limit if the arrests were unjust, or, if justified, to have paid the fines and departed without any demonstration.

That so few accidents occurred, especially on the narrow winding roads, is due more to good luck and to the knowledge of the residents that the tourists were coming than to moderate driving. Why every organized club run and tour should degenerate into a road race seems inexplicable to persons who take no part in them. The only apparent reason is the desire of a number of persons directly interested in the manufacture or sale of cars to secure the free advertising that the local newspapers along the way give by announcing the first arrivals. Added to this is the desire, latent in every human being, to show others that he or his car—or horse, or bicycle, or locomotive—is better or faster than the other fellow's.

Nevertheless, if participants in such runs do not want to force abandonment of organized tours in the future, it is incumbent upon them to observe the exact legal rates of speed, both in cities and villages and in the open country. How this can be enforced is a problem, but a great deal can be accomplished in that direction by providing a pacemaker for each day's run and giving the committee power to disqualify any contestant who passes him. This, unfortunately, will not curb the drivers, who care more for the advertising to be gotten than for the trophy offered, but if half a dozen or more of the most representative men in the tour can be induced by the committee to agree to observe the rules themselves, and to use their moral influence upon the more reckless, the desired object undoubtedly could be attained.

In the Glidden tour there was every reason for traveling in a leisurely way: the scenery was grand and well worth viewing slowly; the weather made riding most enjoyable; the people along the route were friendly and of a type with whom a few words now and then would have been pleasant and perhaps profitable. Ample time was allowed by the conditions of the competition for an average of not to exceed twelve or fifteen miles an hour, so that ladies might go in the run and get great pleasure out of it without discomfort. Yet the chief object of the tour was nearly lost sight of in the ambition to "get there," and after rushing hurriedly past scenic features that thousands of persons journey hundreds of miles by rail every year to enjoy, the speed-crazed division arrived at the end of the day's run by noon, or shortly afterward, and then sat around the hotel with nothing to do but wait for the slower ones to come in.

There were notable exceptions to this, and even the fast ones acknowledged that those who started on the tour with cars equipped with Cape cart hoods, trunk racks, sufficient protection in the way of clothing for dust and rain, and who traveled in a leisurely and luxurious way, were making the most of the tour and doing it in the only proper way. It is to be hoped that next year's tour for the Glidden trophy will be a very different affair. The real competition then should be in comfort and luxuriousness in traveling by automobile—not in the speed and hill-climbing qualities of the machines, which have now been sufficiently proved.

✱

Mechanical Excellence of Glidden Tour Cars.

The great strides that have been made by American automobile manufacturers have seldom been so forcibly brought to the attention of the public as they were by the recently completed Glidden tour from New York to the White Mountains and return—a journey of eight hundred odd miles over all kinds of roads and through all

kinds of country, in which all kinds of cars participated. Runabouts and heavy touring cars, baggage trucks and steamers, air-cooled motors and water-cooled motors—all traveled together, made the same journeys, surmounted the same difficulties, and all but four of the thirty-two starters returned to New York on Saturday, July 22. And of these four only two were forced to withdraw by mechanical troubles, the drivers of the other two dropping out for personal reasons. No one class of car had a majority of the small amount of trouble that occurred. The bigness of the big cars did not seem to give them any advantage over the smaller machines in this respect, and mechanical troubles were impartially, though sparingly, distributed.

From a mechanical point of view the most remarkable feature of the tour is the fact that troubles were the exception and not the rule—that they were unexpected, and not anticipated with dread. Cars participating in tours held in former years always aroused considerable comment when they succeeded in covering any considerable distance without break-downs of a more or less serious nature; but on the Glidden tour the sight of a car broken down or stopped for repairs was sure to arouse a feeling not far removed from surprise. Luck, which sometimes plays an important part when but a single car is concerned, could not be counted on to favor thirty-two all at once, and the wonderful showing made by the machines must he attributed to the advances made by the manufacturers in design and construction.

Ignition and tire troubles, as usual, occupy the greater part of the trouhle list, as far as can be judged before the official data is available; but even these were conspicuously scarce in comparison with other tours. The most serious breakdowns were caused by accidents—collisions, running off bridges, and the like—but even such rough handling as this failed to do more than put the car temporarily out of commission, or make it "limp" until repairs could be made.

While the favorable weather conditions doubtless had something to do with the excellence of the showing made by the cars, it is also true that the steep hills and rough roads, and the long, hard runs, continued day after day, gave ample opportunity for the development of weakness; and the fact that so few weak points were brought out is certainly a cause for satisfaction on the part of the manufacturers of the cars that competed in the first Glidden tour.

✱

Possibilities of the Motorcycle. Saturday's race meet at the Parkway Driving Club track, near New York, was the means of bringing to the attention of many persons the exceedingly interesting possibilities of the motorcycle as a racing machine; and the appreciation given the fine sport afforded goes a long way toward snbstantiating the belief of motorcyclists that this kind of racing will be very popular in the near future. Racing, however, is but one of the things the motorcycle can do, and do well; it is on the road that this really wonderful little machine is at its best.

A well built motorcycle, if intelligently cared for, will give its owner but little more trouble than an ordinary bicycle that is kept in first-class condition. Though this may seem strange to the uninitiated, it is a fact. Accidental damage may occur, of course; but the motorcycle is not alone in this respect.

Only those who have ridden motorcycles can appreciate the pleasure of riding a machine that, while occupying no more road space than a common bicycle, will carry its rider over give-and-take roads as fast or as slowly as he cares to travel, and will climb steep hills in a manner that is especially astonishing to the old-time wheelman. The motorcycle is more than a match for the average automobile, on the level or hill-climbing; and the reserve energy of the little motor is such that no change-speed gearing is necessary. Climbing a steep hill means merely the wider opening of the throttle and the corresponding advance of the ignition; the motor at once responds, and the machine easily goes up grades that force most cars to fall back on low gears. In the recent "climb to the clouds," at Mount Washington, a double-cylinder motorcycle of 3-horsepower—a high power for an American machine—made the eight-mile climb on an average grade of 16 per cent. in 20 minutes 59 1-5 seconds. This was but four-fifths of a second slower than the record time made by a car having approximately twenty times the power of the motorcycle.

A very comfortable little two-passenger machine may be made by attaching a trailer, side carriage or fore-carriage to the motorcycle, the attachment carrying the second passenger. Even thus loaded, the motor will pull its load up fairly steep grades without assistance; and a few turns of the pedals on a hill that is too stiff for the motor alone will take the machine up without difficulty. This is not necessarily hard work, for the motor is quick to feel the help, and needs but little encouragement. Instead of carrying a passenger, the extra seat may be replaced by a box for parcels or the like.

While the motorcycle cannot be considered in any way the rival of the automobile, it is frequently a stepping stone, so to speak, to the larger machine, and the knowledge of motors and the experience gained by the rider of a motorcycle in the management of his engine is of the greatest value to him when he graduates to a car. The man who cannot afford a car finds in the motorcycle a machine that requires no more storage room than the ordinary bicycle; that rarely requires expert attention, unless badly neglected; that will carry him faster and more comfortably than the ordinary wheel and bring him to his destination unwearied; and that costs but a trifle to run. It is a pleasure to ride the motorcycle. The puffing of the exhaust is but faintly heard by the rider, and once well under way, the vibration of the engine ceases to be felt, the machine rolling along smoothly and very steadily, up hill and on the level, like a continual coast.

The motorcycle has not, for some inexplicable reason, enjoyed the popularity here that it has achieved abroad. This is changing, however, and the present season seems to mark a decided increase in the popularity of the machine. It is worthy of note that American motorcycles, having motors of about 2-horsepower, seem capable of equaling the performances of foreign machines of much higher rated power. It would be interesting to know whether this is due to the underrating of American machines or the overrating of those built abroad, or both. The few foreign machines that have been seen in this country have offered few opportunities for making comparisons; but as far as it is possible to judge, the American machine has nothing to be ashamed of when its all-round performances are compared with the work of foreign-built machines.

CLEVELAND RACE MEET.

Two-Day Program Arranged by Local Club—List of Events.

Special Correspondence.

CLEVELAND, July 22.—The third annual race meet of the Cleveland Automobile Club will be held at Glenville track on Friday and Saturday, August 11-12. Six events have heen arranged for each day, and as the meeting is one of the National Circuit Championship the usual five-mile free-for-all is included.

Following is a list of the events:

FRIDAY, AUGUST 11.

Five miles, for cars wighing 1,432 pounds or less.

Five miles for Diamond Cup, free-for-all.

Five miles for stripped touring cars.

Five miles, Cleveland Derby, first heat. Prize, $500 cash, or plate. Must be four starters in race, two or more for each heat; the heat winners will be eligible to start in the ten-mile final on Saturday, August 12. If the second in either heat shall finish in faster time than the winner of the other heat, he shall be eligible to start in the final.

Five miles for stock touring cars listing at $2,000 and less.

Second heat of Cleveland Derby.

SATURDAY, AUGUST 12.

Five miles for touring cars with tonneau carrying three passengers in addition to driver.

Five miles, National Championship, free-for-all.

Five miles for cars weighing 1,200 pounds or less.

Five-mile handicap for touring cars with tonneau carrying three pasengers in addition to driver.

Ten miles, final heat of Cleveland Derby.

Specials and contests for time prizes.

Except as otherwise noted, the first prize in each event will be a silver trophy valued at $50 to $150.

Entries will close August 9 with C. A. Marvin, secretary Cleveland Automobile Club, Hollenden Hotel, Cleveland, O.

KANSAS CITY FIGHT.

A. C. of Kansas City Wins Fight Against Oppressive Ordinances.

KANSAS CITY, Mo., July 22.—The Automobile Club of Kansas City has practically won its fight against the two unjust city ordinances prescribing excessive taxes for the operation of vehicles and unreasonable restrictions as to the examination of operators.

Judge Brumback, of the Circuit Court, before whom is pending the application for an injunction restraining the city from enforcing the ordinances, has delayed his decision on the case until the attorneys for the club and the city have an opportunity to get together.

The judge told the attorneys that it was his desire that they get together and prepare an ordinance agreeable to both sides. "If this is done," he said, "I shall dismiss the case against the city. If the attorneys report back to me that they are unable to agree, then I shall make my decision in the case."

So far little has been done by the attorneys toward framing a suitable ordinance, and some time may elapse before definite action is taken on the judge's suggestion.

It is probable that the judge will decide against the city if the case is put up to him again. The Automobile Club made a strong case when the matter was presented.

BUFFALO AUTOISTS PLEASED

At Park Commissioners Raising Speed Limit for Park Driveways.

Special Correspondence.

BUFFALO, July 24.—Buffalo automobilists are enthusiastic over the action of the Board of Park Commissioners in unanimously resolving to allow automobiles to run in the parkways at the rate of fifteen miles an hour. Recently the board passed a law restricting the speed to eight miles an hour. Several arrests were made under that law.

Automobilists who like to travel at a fair rate of speed were in a state of discontent over the passage of such a law. Frequently they complained of the inconvenience and dissatisfaction in having to keep within a speed of eight miles an hour while riding through the beautiful parkways. While not wanting to break any records, they declared in loud terms that the speed so designated was unreasonable. It was pointed out that horses going at an average rate made at least twelve miles an hour.

President A. H. Knoll, of the Automobile Club of Buffalo appeared before the park board armed with a mass of statistics. He showed how fast horses traveled ordinarily; how fast bicyclists go without violating the law, and showed by the comparison that there was really discrimination against the automobile. The board relented, finally fixing the speed at fifteen miles, with the stipulation that cars turning the Zoo angle must slow down to ten miles an hour. The board also directed its police to force horsemen and wheelmen to keep to the right of the roadway.

TESTING MICHIGAN LAW.

Special Correspondence.

GRAND RAPIDS, Mich., July 22.—Grand Rapids automobile drivers are busily engaged in fighting the State law. W. S. Daniels, proprietor of the Michigan Automobile Company, was fined $12 and costs, amounting to $20 in all, in police court, for exceeding the eight-mile limit. The case was immediately appealed to the Circuit Court, and Mr. Daniels says it will go to the Supreme Court if necessary, in order to determine the exact meaning of the "business district."

Representative Edward T. Heald, one of the men who aided in the passage of the law, is attorney for Mr. Daniels. The case is a test.

TO PREVENT ACCIDENTS.

Mayor Orders Strict Enforcement of Toledo Regulations.

Special Correspondence.

TOLEDO, O., July 22.—Mayor R. H. Finch has issued an ultimatum to the effect that automobile speeding in Toledo must stop. The police have been notified of the mayor's intentions, and unless more attention is paid to automobile regulations wholesale arrests are likely to follow.

The decision of the city's chief executive was brought about by the number of accidents which have resulted recently. Last Sunday two persons were injured, one of them a policeman, and this seems to have been the straw which broke the camel's back.

Instructions have been issued frequently regarding the speed limit, but little attention has been paid to them. As a matter of fact, automobilists have learned to look upon the speed ordinances with considerable contempt, even though they provide heavy fines for violation.

The city's laws governing automobiles and similar vehicles are as follows:

"Be it ordained by the common council of the city of Toledo that no automobiles, motor cycles or other motor vehicles shall be operated or propelled on any street, avenue or highway in the city of Toledo at a greater rate than ten miles an hour.

"It shall be unlawful for any person or persons to permit any child under the age of 15 years to operate any automobile, motor cycle or other motor vehicle upon any street, avenue or highway in the city of Toledo.

"Any person violating any of the provisions of this ordinance shall, upon conviction thereof, before the police court of said city, be fined a sum not to exceed fifty dollars, or imprisonment for a period not to exceed thirty days."

STAGES DISPLACED IN NEVADA.

Special Correspondence.

DENVER, July 20.—In the new gold fields of Nevada the stage coach has given place to the automobile. There are sixteen automobiles in operation between Tonopah and Goldfield, a distance of thirty miles.

The route traversed is over some of the worst roads in the West, and is covered by the automobiles in but little more than one hour as against three and one-half hours by the old-time stage.

Between Goldfield and Bullfrog about a half dozen machines are now in regular use. This route is seventy-five miles long, and is made in six hours, while ten hours were consumed by the old means of conveyance.

Special roads have been built, and are used solely by the automobilists plying between Tonopah, Goldfield and Bullfrog. Another road of this kind is being constructed to Las Vegas, N. M., on the new Salt Lake and Los Angeles railroad.

Burr Vermilyea is thinking of getting an auto to make his rural route trips in. The auto thing will be all right, and if Burr gets the "man killer" he will attach a big foghorn to let everyone know "Uncle Sam" is a-comin'.—*Unionville (Ia.) Chronicle.*

THOUSAND ISLANDS CRUISERS.

To Be Entertained by Syracuse and Oswego Yachtsmen While en Route.

Special Correspondence.

SYRACUSE, N. Y., July 12.—Preparations are under way here to meet and suitably entertain the members of the American Power Boat Association, whose boats will pass through this city on the canals next month on their way to the annual races at the Thousand Islands, in the St. Lawrence river. Hudson is the rendezvous, and the fleet will leave there August 17. The first night will be spent at Albany, as the guests of the Albany Yacht Club, and early on August 18 the fleet will enter the Erie canal and proceed to Oswego.

From Utica to Syracuse there is a day's run without the interruption of a single lock. Near Utica some of the officers of the Syracuse Yacht Club will meet the fleet and accompany it to Syracuse, elaborate preparations being under way to entertain the mariners. Here the boats of the Syracuse Yacht Club and Buffalo Launch Club will join them, and the enlarged fleet will proceed to the station of the Oswego Yacht Club. The yachtsmen will be entertained at Oswego, too, and will prepare there for the last run down Lake Ontario and the St. Lawrence to the Thousand Islands.

On August 24 the first of three races for the Association's Challenge Cup will be held under the auspices of the Chippewa Yacht Club, and the cruising fleet will witness these races. On the evening of August 25 the visitors will be entertained by the Frontenac Yacht Club. The following day there will be a cruise among the islands, and in the afternoon the last race for the challenge cup will take place. At sunset of that day the power fleet will disband.

Some of the boats will remain in that region for weeks, while others will at once return by way of the St. Lawrence, Lake Champlain and the Hudson river. J. H. McIntosh, of New York, is chairman of the committee in charge of the cruise.

TOLEDO RACES JULY 30.

First Meet of the New Toledo Racing Association—Half Mile Track.

Special Correspondence.

TOLEDO, July 22.—The Toledo Motor Racing Association, recently organized, will hold its first meet Sunday, July 30. Seven events have been arranged, the last and most important of which is a match race for a purse of $1,000 between Barney Oldfield and Earl Kiser, best two in three heats. The other events are:

Two-mile novelty race for touring cars fully equipped and carrying three passengers and a driver; passengers to be unloaded and picked up again during race.

Five miles, open to stripped touring cars.

Five miles, open to cars of 20-horsepower.

Five miles, free for all.

Five miles, for motorcycles.

Three-mile handicap, free for all.

Earl Kiser is now in the city and has tried his machine on the half-mile track, on which the races will be run. Barney Oldfield will arrive early next week.

According to W. H. Pickens, manager for Oldfield, who is at present in the city, it depends upon the July 30 meet whether or not Toledo will be included in the automobile racing circuit which is now being formed. The meet will be held under the rules and sanction of the A. A. A.

ANNUAL MOTORCYCLE MEET.

Racing and Fun at Annual Gathering of F. A. M. at Waltham, Mass.

The third annual meet of the Federation of American Motorcyclists will be held at Waltham, Mass., during the second week in August, the various races, hill climbs and pleasure runs occupying nearly the entire week. The Waltham Autocycle Club has arranged a list of events to be run off in conjunction with the meet, and motorcyclists all over the country are looking forward to the meet with pleasurable anticipation. The F. A. M. has always aimed to make its meets occasions of jollity and relaxation, the prevailing feeling being that the main object is not so much to race and win prizes as to have an enjoyable outing amidst pleasant surroundings.

The roads for the road races and touring trips are said to be very good. Prospect Hill, where the hill-climbing contest will be held, is a series of gentle grades and steep pitches, sharp turns and straight stretches, the whole shaded by fine trees. Track races will be held on the Waltham bicycle track, where contests of skill and short races will be decided, while the longer events will be held at the Charles River track, which is banked, and permits of high speed. One of the special features of the meet will be the fuel economy test, in which each contestant will be given a pint of gasoline and started, the machine making the greatest mileage winning the first prize. Three prizes are offered. Programs and entry blanks may be obtained from L. E. French, P. O. Box 3, Waltham, Mass. The lists close August 1.

MILWAUKEE CLUB MEETING.

Report Changing Name Favorably Received.—New Members Elected.

Special Correspondence.

MILWAUKEE, July 22.—At a meeting of the Milwaukee Automobile Club, held in the Pfister Hotel last evening, the committee appointed to formulate plans for increasing the membership and scope of the club submitted its recommendations, which were favorably received.

Among other things, the committee recommended that in order to place the organization on a sound basis, and to give it proper legal standing, that a corporation be organized without capital stock; that in order to build up a strong non-resident or associate membership recruited from the State at large the name of the club be changed to the Automobile Club of Wisconsin; that a suitable club house be erected or club rooms in connection with a conveniently located garage be secured. The initiation fee was fixed at $15 for active members, and the annual dues were placed at $10.

The following members were elected Charles F. Pfister, Albert O. Trostel, Harry Landauer, W. B. Uihlein, Charles H. Stehling, G. J. Hansen, E. F. Niedecken, I. L. Nicholson, Jr., and Harry W. Bolens, Port Washington, Wis.

NEWS NOTES OF THE CLUBS.

BUFFALO.—Evidence of the generous spirit of the members of the Automobile Club of Buffalo was shown Saturday by the announcement that the club has tendered the use of its automobiles to the orphans in the various Buffalo institutions, and the children will be given a ride about the city on Wednesday, August 9.

GRAND RAPIDS, MICH.—An excursion of crippled children from Chicago was entertained with an automobile ride about the city Sunday. Members of the Grand Rapids Automobile Club placed machines at the disposal of the cripples, and they were taken to all points of interest.

PITTSBURG, PA.—The Pittsburg Motorcycle Club has elected the following officers for the ensuing year: R. Frick, president; J. Depp, secretary; A. Schmidt. J. Watson, E. Eisenberg, H. Bartell and W. Porter, executive board. The secretary's permanent address is No. 1318 Adams street.

MARSHALLTOWN, IA.—The Marshalltown Automobile Club has been formed here with a charter list of sixteen members, and has elected the following officers: C. E. Eadie, president; Dr. H. L. Getz, vice-president; Dr. A. C. Conaway, secretary, and W. H. Burrows, treasurer. The regular meetings of the club will be held the first Monday in each month. Arrangements are now under way for a race meet at an early date.

PEORIA, ILL.—A legal committee has been appointed to represent the Peoria Automobile Club in conference with the city council for a discussion of the proposed automobile ordinance which is intended to supersede the present law. The committee is composed of W. W. Hammond, chairman; Herman Danforth and C. A. Bartholomew.

MINNEAPOLIS, MINN.—If the present plans of the Minneapolis Automobile Club are successfully carried out, the club will have most comfortable quarters for the remainder of the season. Efforts are being made to secure the use of the Long Meadow Gun Club's house. Negotiations have been under way for some time, and indications are that the clubhouse will be secured.

MUSKEGON, MICH.—The Muskegon Motorcycle Club has decided to hold a race meet in this city on Labor Day. Riders from all over the country will be invited to take part, and unusually high stakes will be raced.

PONTIAC COMPANY TO BUILD

Special Correspondence.

PONTIAC, MICH., July 21.—The Rapid Motor Vehicle Company, of this city, which recently increased its capital stock from $100,000 to $240,000, is now planning extensive improvements to meet the requirements of its business.

The company has secured a twenty-acre tract, which is in the shape of an irregular triangle, on which it will erect a main factory building, 500 by 50 feet, two stories in height. A strip 2,000 by 50 by 250 feet will be reserved for factory buildings, and on the remainder of the ground operatives' houses will be built. The land fronts 300 feet on the D. G. H. & M. R. R., and switches from the main line will be run into the factory buildings.

Until the new plant is completed the company will continue the manufacture of its cars in its present factory.

MEETING OF PARTS MAKERS.

The semi-annual meeting of the Motor and Accessory Manufacturers, Inc., has been called by Secretary J. W. Gilson, of Hartford, Conn., to be held at 11 o'clock A.M., on August 4 at the Cadillac Hotel, Detroit.

Several matters of importance will be presented for consideration at this meeting, including the report of the committee with regard to the New York and Chicago shows, and also plans for enlarging the scope of the association. The secretary has urged that a full representation of the membership be present.

It has been arranged to reserve a number of seats for the races on August 4 and 5 so that the members may attend in a body.

NEW DEALERS' ASSOCIATION

Permanently Organized and Its Real Objects Outlined.

Special Correspondence.

BUFFALO, July 24.—Since the organization of the National Association of Automobile Dealers in this city, last week, there has been much discussion as to the real purpose of the association. It has been said that one of the prime objects of the retail dealers in banding together is to obtain from the manufacturers larger discounts. Another is the claim that the retail dealers want an arrangement whereby the manufacturer, if he fails to deliver a car, shall return not only the deposite made by the retailer, but also a sum equal to the profit the dealer would have made had the car been delivered.

Be this as it may, it is apparent from the statements of Wellington C. Jaynes, of the Jaynes Autocar Works of Buffalo, who was elected president of the association, that the chief object of the retailers in organizing is to protect themselves and to better trade conditions, in so far as they relate to the manufacture and sale of the automobile. It is not the purpose of the organization to antagonize the manufacturers' association, neither to buck it in any way, but rather to co-operate with the manufacturers in the betterment of trade conditions and work in harmony with the stronger association.

President Jaynes, in speaking of the new association, said to a representative of THE AUTOMOBILE:

"We organized to confer with the manufacturers in regard to matters affecting the trade. The automobile manufacturers are powerfully organized and have done a great deal of good to the industry, but have not regulated the industry beyond their own doors. The retail dealers have never been organized. Certain abuses have crept into the trade independent of and connected with the manufacturers. There is not a clear understanding between the trade dealers and the manufacturers regarding certain matters.

"Primarily, the object is to have the heads of each association get together and unite upon a plan or policy for the ensuing year or years, which will lead to the betterment of the trade. It is not the object of the retail men to antagonize the manufacturers; it is far from that. Nor is there any idea to injure them in the slightest way; it is a case of co-operation."

The association will have representatives in all of the larger cities throughout the United States. About thirty dealers attended the meetings last Monday and Tuesday at the Lafayette Hotel, when permanent organization was effected and officers and directors elected, results of which were announced in THE AUTOMOBILE of July 20. In addition to the officers and directors named, the following prominent members of the trade were present: C. C. Stolz, Marion, O.; Thomas E. Curtain, Columbus, O.; W. P. L. Newman, Detroit; F. E. Avery, Columbus, O.; George W. Hart, Grand Rapids; George Miller, Baltimore; Thomas B. Gould and Arthur L. Banker, of Pittsburg. Mrs. May Post, of Cleveland, was also present and is the only woman member of the association.

The committee on organization was made up of F. G. Smith, Jr., W. C. Jaynes, J. N. Willys, of Elmira; P. L. Neal and William M. Murray.

On Monday evening the visitors were the guests of E. R. Thomas, the well-known Buffalo manufacturer, who took them to Grand Island. They were taken in automobiles to the Ferry street docks and thence aboard the steamer *Ossian Bedell* to the Bedell House.

W. G. Newlin has secured the agency for the Rambler cars at Benton Harbor, Mich., and has opened an office at No. 128 Pipestone street.

The Powell Automobile Company, of Omaha, Neb., has removed to its new garage on Farnam street, just west of the Bachelor's Hotel.

On account of the heavy rains on Saturday, July 22, the race meet scheduled for Cape May Beach for that date was postponed until Saturday, July 29.

The Yale Automobile Company, Chicago agents for the Yale cars, has removed its salesrooms from 1414 to 1413 Michigan avenue—just across the street.

Ex-Senator H. S. Earle, Good Roads Commissioner for Michigan, has called a good roads convention to be held in Port Huron, Mich., August 29, 30 and 31.

The Mitchell Manufacturing Company, of Portsmouth, Ohio, is now converting its plant into an automobile garage and installing a thoroughly up-to-date repair department.

The Chicago branch of the Electric Vehicle Company has removed from 1413 Michigan avenue to its larger and more commodious quarters at 1332-1334 Michigan avenue.

C. H. Gillette, formerly secretary of the American Automobile Association, has been appointed manager of the automobile liability department of the Ætna Insurance Company, of Hartford, Conn.

The Githers Brothers Co., agents for the Oldsmobiles and Yale cars, has removed from 1412 Michigan avenue to its new building at 1328-1330 Michigan avenue, Chicago. In its new quarters the company has a floor space of 13,800 square feet.

The Buick Motor Company, of Jackson and Flint, Mich., has leased the premises at 1412 and 1414 Michigan avenue, Chicago, recently vacated by the Yale and Olds agencies, and is now fitting the quarters for early occupancy by its Chicago branch.

The Savannah Baggage and Cab Company, which operates a cab and 'bus business in Savannah, Ga., is now planning to establish a "Seeing Savannah" 'bus service in the early fall. Two automobiles, of twenty-five-passenger capacity, will be used.

The South Haven Automobile Company, recently organized at South Haven, Mich., has inaugurated an automobile passenger service between that point and the nearby towns. Two touring cars are now in use, and more will be added as the business demands.

Agents for Thos. B. Jeffery & Company throughout the country have been notified that in addition to the contemplated output of Rambler for 1905 the company will build 500 extra surrey type cars in order to meet the demand during the summer and early fall.

Lafayette Markle, recently associated with the Central Automobile Company, New York agents for the Corbin Motor Car Company, has joined the forces of the Corbin Company at New Britain, and will in future be connected with its engineering department.

The Missouri, Kansas & Texas Railroad Company has decided to put in operation an interurban automobile service over its branch road between Denison and Sherman, Texas. The plans of the company provide also for a line of such cars in Denison and one in Sherman to connect with the intercity line.

Joseph W. Moon Buggy Co., of St. Louis, Mo., has entered the automobile field, and will market a 30-35-horsepower touring car. The first car is now well under way, and will be completed in about two weeks. Only one type of chassis will be made. Owing to this change in its business the company will make extensive additions to its plant.

The construction of the new plant of H. F. Borbein & Co., on North Ninth street, St. Louis, is progressing rapidly. The foundation is completed, and work is being pushed on the building proper. The new factory is located just across the street from the old plant, and when completed the company will have more than twice the amount of floor space heretofore used.

A two-story brick building, 80 by 80 feet, is now being erected as an addition to the plant of the New Process Raw Hide Company, of Syracuse, N. Y., makers of gears and rawhide pinions. The new building is expected to be completed about the middle of September, and will be used exclusively as a machine shop. The increased facilities thus afforded will practically double the capacity of the factory.

The Western Automobile Company has recently opened an up-to-date garage and salesroom at No. 384 Cedar street, St. Paul, Minn., and in addition to handling the Peerless, Northern and Baker cars a general storage and repair business will be conducted. George H. Stout, formerly vice-president and manager of the Acme Motor Car Company, of New York, is president of the company, and R. C. Holbert is vice-president.

A meeting of the executive committee, the patents holding committee, the trades and agency committee and the show committee of the Association of Licensed Automobile Manufacturers will be held at the International Hotel, Niagara Falls, on July 27. Following the meeting of these committees, they will render their respective reports to a meeting of the board of managers of the Association which will be held at the same place on July 28-29.

Plans have been completed and contract awarded to Charles A. Sicard for the construction of a garage at Nos. 217-223 South Rampart street, New Orleans, for the Crescent City Automobile Co. The building will be equipped with modern devices for the repair and care of automobiles, and will afford ample space for the storage of machines and also for commodious salesrooms. W. Philip Johnston is president of the company, and Charles U. Kennedy sales manager.

The Miller Motor Car and Supply Company, of Bridgeport, Conn., agents for the Maxwell cars, has recently completed its new garage, located in the center of the city, and directly on the main line from New York to Boston. The new building is 44 by 100 feet, and is equipped with modern appliances for the conduct of its business, and, in addition, waiting rooms are provided for the convenience of its patrons. The company also carries a full line of automobile supplies.

At a meeting of the western classification committee, representing the railroads west of Chicago, which was held at Charlevoix, Mich., last week, a reduction was made in the freight rates on automobiles. Under the new classification automobiles "knocked down" and crated, or boxed, and shipped in less than carload lots, will be accepted at the rate for first-class freight instead of at three times the first-class rate, as is now charged. This reduction will take effect October 1 next, and applies to the territory west of Chicago.

RECENT INCORPORATIONS.

Couple Gear Freight Wheel Co., Grand Rapids, Mich.; capital, $500,000.

Park Auto Co., Wilmington, Del.; capital, $20,000; to deal in automobiles.

D'Arsi Auto Gas Flame Co., New York; capital, $100,000. Directors: F. M. D'Arsi, J. O. Wolf and A. J. Wilmer.

Duluth Automobile Co., Duluth, Minn.; capital, $10,000. Incorporators: R. J. Davis, M. R. Dick and H. C. Fulton.

Tuxedo Garage Co., New York; capital, $40,000. Directors: C. A. Gerlach, S. S. Leo and H. M. Hergert, all of New York.

Excelsior Automobile Co., New York; capital, $6,000. Directors: Samuel Labovits, M. H. Fockdorf and Joseph Ruben, all of New York.

Mercantile Motor Co., Jersey City, N. J.; capital, $200,000. Incorporators: Albert H. Overman, Ward B. Chamberlain and Albert B. Chamberlain.

Stanton Mfg. Co., Union, N. J.; capital, $100,000; to manufacture automobiles and parts thereof. Incorporators: A. C. Stanton, Maxwell K. Willoughby and Frank Southmayd.

Pneumatic Tire Protector Co., Dayton, O.; capital, $10,000; to manufacture rubber fabric tire protectors. Incorporators: Walter S. Thomas, G. T. Thomas, D. W. Wood and E. E. Coate.

Aster Co., New York; capital, $250,000; to manufacture automobiles, boats, etc. Incorporators: A. J. Myers and Alfred Epstein, of New York, and Fred Komp, Rutherford, N. J.

Palace Automobile & Machine Co., New York; capital, $30,000; to manufacture automobiles. Incorporators: Hamilton Farnham, Charles H. Darmstadt and Louis Farnham, all of New York.

Traverse and Feninsula Traction Co., Traverse City, Mich.; capital, $30,000; to operate passenger 'bus lines. Incorporators: W. H. Blake, H. O. Joynt, J. W. Blakeslee and Charles Prochaska, Jr.

Princeton Garage Co., Princeton, N. J.; capital, $2,100; to store, care for and repair automobiles. Incorporators: Thornton Conover, Edward C. Kopp, Louis J. Campbell and Charles J. Wyman, all of Princeton.

The Belden Automobile Transmission Co., Jersey City, N. J.; capital, $200,000; to manufacture appliances to be used for the Belden system of power transmission and control of automobiles. Incorporators: H. O. Coughlan, T. F. Barrett and J. M. Woods, all of Jersey City.

Muskegon Motor Co., Muskegon, Mich.; capital, $5,000; to deal in automobiles, motorcycles, bicycles and gasoline engines, both auto and marine. Officers: Dr. C. J. Dove, president; Milo Pray, secretary-treasurer, and William Stover, Percy Anderson and Alphonse Gagnon, board of directors.

THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, AUGUST 3, 1905—CHICAGO No. 5

VANDERBILT CUP COURSE FOR 1905 RACE.

THE course chosen for the Vanderbilt cup race in 1905, and for the American Eliminating trials preceding that race, differs markedly from the course of last year. Instead of being in the central and southern part of Long Island, the larger portion of it is in the northern part, where the country is far more broken. The ruggedness of Roslyn, Locust Valley and Oyster Bay is avoided, and there are no hills which the racers will not take on high gear, but nevertheless there are numerous short grades up to or exceeding 8 per cent., and two or three fairly long hills as well.

A conspicuous feature of the course is the fact that it is so laid out as to pass through no towns at all of any size, and in fact even the villages are scarcely more than clusters of a dozen houses or so. There are only two railroad crossings, both of them on the Oyster Bay branch, which is traversed at Mineola and Albertson.

As a direct result of the avoidance of towns it follows that a large portion of the course is laid over very narrow roads, many of them hardly more than 15 feet wide, and altogether unsuited for the passing of one racing machine by another at 50 or 60 miles an hour. From the broken character of the country it results also that the roads in many cases are winding rather than straight. This includes all the sections running north and south, and also the east and west section between Lake Success and Albertson. On the other hand, the section between Greenvale and East Norwich is fairly wide,

A CHARACTERISTIC VIEW ON THE VANDERBILT CUP COURSE—THE HAMLET OF EAST NORWICH—TOURING CAR IN PHOTOGRAPH IS HEADED IN THE DIRECTION OF THE RACE FOR THE RUN TO JERICHO.

and has long, straight stretches, which will make it possible, although difficult, for one car to pass another; and of course the well-known Jericho turnpike (used in the race last year), which is followed for the larger portion of its length, is a splendid road for any sort of speed competition.

Although the course is described, in the application for the race permit, in a manner that would lead one to suppose that the racers would follow it in a counter-clockwise direction, it seems reasonable to believe that customary usage will be adhered to by sending the racers around in such a direction that the operator will be toward the inside of the turns, which, with few exceptions, will be right hand turns this year, as last.

The course may be reached from New York by way of Flushing and Douglaston, which brings the tourist to the sharp turn just north of Lake Success; or by going down to Jamaica by way of Hoffman Boulevard and Hillside Avenue, and thence through Queens to New Hyde Park. At present the road through Queens is undergoing much needed repairs, so that the other road would be preferable during July and the early part of August. Later on, however, there will be little choice. Coming out to Flushing, one has to traverse several miles of uncomfortable Belgian block pavements before reaching the macadamized portion of Jackson avenue. On the other hand, this route is shorter.

The following description starts from the Hyde Park turn on Jericho Turnpike. This turn is reached about 2 1-2 miles from Queens, and is marked on the right (going east) by two roadhouses, which, with their sheds, are painted a light yellow. The second has a sign over it marked "Wm. Hausch." At this point the "Lakeville Road" strikes approximately north-northwest, making an angle of more than 90 degrees with the turnpike, and consequently affording a very easy turn for the racers. The Lakeville road is unmarked at this point by telephone poles, and is flanked by cultivated fields, which a little further north are alternated with groups of trees. The road is macadam, with a thin sprinkling of sand on the surface. It is smooth and narrow, and fairly straight for a quarter of a mile. The remainder of the road is much more winding than the map indicates, though none of the turns is very sharp. It is, however, frequently impossible to see more than a hundred feet ahead. The width of the traveled part of the road is not more than 18 feet, and here, as is the case with most of the narrow roads, the ditches are quite shallow, a feature partly explained by the undulating character of the country, which allows the water to run off freely.

Lake Success is approached by an easy ascent on the left. Immediately before reaching it is the new country place of W. K. Vanderbilt, Jr. It covers a number of acres, and in its center is a rather abrupt knoll sparsely covered with trees. A high iron fence surrounds the property. Lake Success, a tiny body of water bordered by trees, is passed immediately on the left. The Vanderbilt estate entirely surrounds it, except for one approach from the road forming a part of the course. This approach is public, and Mr. Vanderbilt has endeavored unsuccessfully to purchase it from the township of North Hempstead. The lake is fed by springs beneath its surface, and is reported to be exceedingly deep.

A quarter of a mile beyond the lake is an exceedingly sharp right turn of less than 90 degrees. It is marked by the Lakeville Hotel, a sand-colored frame structure, facing south on the west side of the road into which the turn is made. The road surface here is mostly soft sand, and the turn must be made very slowly. A quarter of a mile beyond is another right turn into the I. U. Willetts road, which almost immediately swings to the left and runs east with many turns. At this point is a fairly steep descent for about a quarter of a mile. The country is quite broken, and some fine groves of old trees are passed. The road is very narrow and it would be impossible to pass here unless one were going quite slowly. The road is marked by a line of high telephone poles. It is flanked by pasture land and fields, with one or two distant views and a series of easy descents leads one to the comparatively straight road to Searington. The surface is still sandy and narrow, but it is smooth.

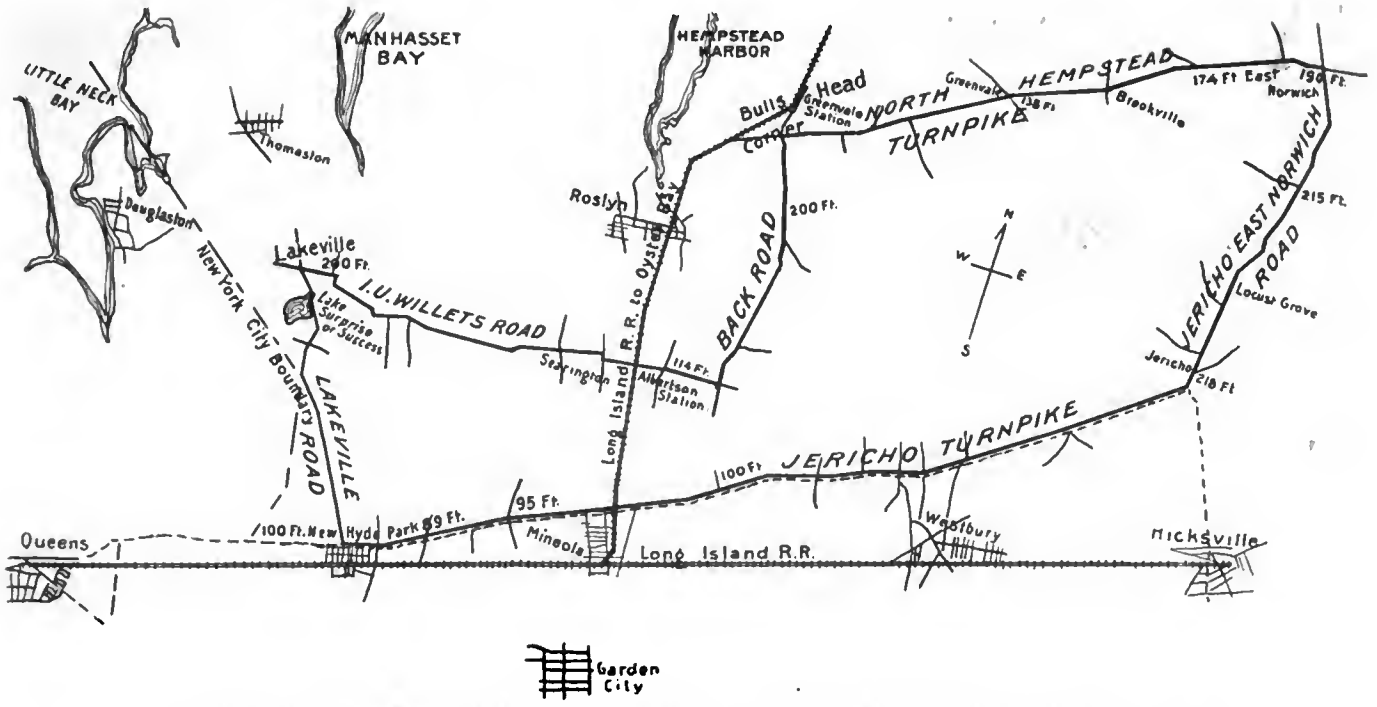
A Vanderbilt Course Landmark—Methodist Episcopal Church by the Roadside Near Searington, Built Over 100 Years Ago.

Searington is identified mainly by an old and weatherbeaten frame church on the left, just beyond a large red barn. A plate on the church bears the date 1788, and the little graveyard adjoining has a tombstone dated 1815, and another so old that the face is entirely gone. It is about three miles from Lake Success to this point. There is not even a village here; only two or three farm houses.

A third of a mile beyond this is a peculiar offset in the road which is marked by a grassy triangle, in the center of which is a very large telephone pole with many wires. Large pine trees border the little triangle, and in the center there is a fine horsechestnut tree. A stranger in the locality might find it difficult to follow the Vanderbilt course directly, for at this point the course crosses diagonally a north and south road, known as Willis avenue. Willis avenue runs across the island, north to Roslyn and south to Mineola and beyond. Approaching the apex of the triangle on the I. U. Willetts road, a slate-colored frame house, shaded by a number of large maples, will be noticed opposite the base of the triangle on the far side of Willis avenue. At the triangle one takes the right turn and runs for a matter of a few rods only southward on Willis avenue, immediately coming to a left turn which is virtually a continuation of the I. U. Willetts road, over which we have been traveling. Willis avenue affords a convenient way of reaching the Garden City Hotel, to the south.

Another third of a mile eastward the railroad is crossed at Albertson station. The station itself on the right is a mere shanty, painted dark green, with gravel roof. The railroad crossing is dangerous, because an eight-foot bank on the left prevents one from seeing the approach of trains from the north.

A quarter of a mile beyond is the main north and south road connecting Roslyn and Mineola. The road crossing is flanked by high banks which prevent any view of approaching traffic on the Roslyn-Mineola road and there is a great liability of accident here unless a machine going over the course is kept well in hand. From this point for three-quarters of a mile to the next crossing the road is very sandy and apparently has no macadam foundation. It is only 12 feet wide in the clear. The turn north to Greenvale, into what is styled as the "Back Road" in the permit, is the second turn beyond the railroad. The road approaching the turn is quite wide, but has never been surfaced, and in the center is overgrown with weeds—the right hand portion of the road is in bad condition. From this point there is a beautiful view ahead in the distance, the narrow white road cutting a path through a dense woods, giving a curious canyon effect. The left turn is made long before reaching this "canyon," however, and it is quite abrupt and not distinguishable until one is close to it. Under present conditions the turn is dangerous, but it would be easy to cut down the weeds and surface the entire width of the road, so as to make the turn safe for high speeds.



SKETCH MAP OF THE VANDERBILT CUP COURSE ON LONG ISLAND SELECTED FOR THE 1905 RACE.
Note.—The Jericho Turnpike Formed Part of the Course Used Last Year. The 1905 Course is Approximately 29 Miles.

The Back road from this point north to Greenvale is fairly sandy, but better than the portion immediately preceding. It winds considerably and is crossed by two or three roads in the 2 1-2 or three miles before Greenvale is reached. At one of these crossings one might, if incautious, take the wrong turn, owing to the angle at which the roads intersect. It is about midway between Albertson and Greenvale, and is marked by a small white house on the farther side. Here the correct road bears slightly to the left and is crossed at right angles by another road which runs west direct to Roslyn. The correct road has a road sign reading "Glen Cove 5 miles." Just beyond this point the road passes a large estate on the left bordered by a white fence and a thick hedge. The road here passes between Harbor Hill on the left and Wheatley Hill on the right. These hills are hardly distinguishable as hills from the road, although Harbor Hill is the highest point on Long Island.

Approaching Greenvale one passes several white framed houses on the left close to the road, and directly at the turn a road house painted light green. Here the road is crossed by the direct road connecting Roslyn and East Norwich, into which a sharp

LAKE SURPRISE, OR SUCCESS, LYING PARTLY WITHIN THE W. K. VANDERBILT, JR., ESTATE AND BORDERING ON COURSE.

Little Triangle Which Marks Willis Avenue as It Is Approached on the L. U. Willetts Road—The Course Turns to the Right.

Approaching the Grade Crossing of the Oyster Bay Branch of the Long Island Railroad at Albertson Station on the L. U. Willetts Road.

Looking Northeast on the Jericho Turnpike at Its Junction with the Lakeville Road into Which the Cars Turn "Right."

Looking East Across Willis Avenue (North and South Road) at the "Jog" in the Course—Note Car is Turning "Left" into Continuation of the L. U. Willetts Road.

Car Making Left Turn from I. U. Willetts Road into the "Back Road"—Note Center of Course Overgrown with Weeds.

Bull's Head Hotel Which Marks the Turn from the "Back Road" into the North Hempstead Turnpike—Note Car Is Making the Turn.

Looking Backward at a Clear Straightaway Stretch on the Narrow North Hempstead Turnpike.

Looking Backward at the Approach to the Jericho Turn—Note Car in Foreground Is on the Course and Headed for Jericho Turnpike.

PHOTOGRAPHS ALONG THE NEW SECTIONS OF THE VANDERBILT CUP COURSE FOR 1905 SHOWING LANDMARKS AND THE PRINCIPAL CORNERS TO BE NEGOTIATED BY THE DRIVERS.

APPROACHING ONE OF THE MANY BENDS ON THE LAKEVILLE ROAD—THE W. K. VANDERBILT, JR., ESTATE IS INCLOSED BY THE IRON FENCE SEEN ON THE LEFT—THE ROAD IS MORE SINUOUS THAN THE MAP INDICATES.

right turn is made. On the farther right hand side, when approaching the turn, the Bull's Head Hotel is seen, a comparatively new building, painted a slaty green and having its name conspicuously displayed on the hotel shed. The width available for turning is a scant 25 feet. The surface is macadam and a little sandy. The course is now along the North Hempstead Turnpike.

From Greenvale nearly to East Norwich the road is about 20 feet wide, and is oiled along the center. It affords the best going of any portion of the course thus far described, and is nearly straight but quite hilly. About three miles from the turn at the Bull's Head Hotel one crosses a road running northwest to Glen Cove and southwest to Jericho. Just beyond the crossing is a wagon repair shop on the right, the sign over which bears the name of Frank Smith. On the left, at the corner, is the Nassau road house

A mile beyond one goes down a very steep but straight descent into Brookville, a cluster of a half dozen houses, shaded by large, old trees. It derives its name from a runlet too inconsiderable to place on the United States topographical maps. Just beyond is an almost equally steep ascent, beyond which the road undulates through fields and occasional groves for two miles or more to East Norwich.

The approach to the turn at East Norwich is bordered for some distance by houses set in shade trees, and the turn itself is indicated by the sawed-off stump of a flagpole in a grassy plot directly in front, on the left hand side, as one approaches the turn. The north and south road here (known locally as the Jericho East Norwich road) is the main road from Oyster Bay on the north to Massapequa on the south, and the road by which the turn is approached goes straight ahead up a short, steep hill beyond the crossing. On the right, in the angle of the turn, is the Post-office, and opposite it is a hotel. On the left hand, just as one takes the turn, is an undertaking establishment. About 25 feet is the width available for the turn.

From East Norwich to Jericho the road is of medium width and quite sandy. It is bordered by more houses than have previously been met with, and is crossed several times. The surface is macadam, in excellent condition. The distance to Jericho is between four and five miles.

The turn at Jericho is marked by Powell's Hotel, in the angle of the turn. It is yellow and the trimmings of a darker color, and is a popular "port of call" for automobilist tourists. The grade is downward here, and just at the turn the descent is quite abrupt for a couple of rods. The turn is easy, however. On the left of the direct south road just opposite the turn is the post-office and general store, a small, greenish-yellow structure, trimmed with red, and much weather-beaten. The turn itself forms one angle of a small triangle, in which stands a small maple tree. The road here is 13 feet in the clear.

We are now on the Jericho turnpike, part of last year's course, though we are now going in the reverse direction of the 1904 race. This is the best portion of the new course for speed. The direction here is southeast, gradually bearing slightly more to the west. The road is level and about 24 feet wide. The macadam surface is very good. Owing to the fact that there are no grades to speak of after the first half mile or so, the ditches are quite pronounced, and one could not turn into them without accident. The road is at first unmarked by telephone poles, but toward the western end these poles are found. There is a fair sprinkling of houses and farms along the turnpike, but no definite settlement till one approaches Mineola.

At Westbury, about midway between Jericho and Mineola, one passes the old pump on the left hand side, near which it was at first proposed to start the race of last year. On the Jericho turnpike one leaves altogether the undulating country through which the major portion of the course lies and the road is flanked by farm lands with only occasional trees. There are no marked features in the road beyond its complete adaptability to high speed. The second and only other railroad crossing is approached by a straightaway, and can be seen for some distance off. The crossing itself is quite rough, and would furnish a severe test to the springs if taken fast, but there is plenty of time to slow down for it, and also to note the approach of trains.

From here the general character of the course remains the same until the village of New Hyde Park is reached, the starting point of this description of the course.

Three prominent citizens of Lowell, Mass., were recently injured in a most peculiar automobile accident. In endeavoring to avoid running over a fool rooster who thought the road belonged to him, the driver turned his car and struck a telegraph pole. The pole was broken off and all of the occupants of the car were thrown out, fracturing the driver's skull. However, no damage was inflicted on the fowl.—*Minneapolis (Minn.) Journal.*

Experience with a Second-Hand Runabout.

By R. E. PEARS.

EVERY owner of a low-powered automobile has probably wished at times that his motor was just a little more powerful; that he could take more grades on the high gear and make a little better time on the level. The desire for more power is likely to be especially pronounced when a hill is encountered which is just a trifle too steep for the high gear—when a slight increase in power would be sufficient to keep the machine going without having to drop back to the hill-climbing gear and crawl up with the motor racing.

As might be expected, many attempts have been made by owners to attain the desired result by alterations in the engine, and the consequences are varied. Many altered cars are running better than they did originally, and the owners are satisfied with a slight improvement. Other owners, who found that there were still other hills that were too much for the high gear after the "improvement," have carried the power-increasing idea beyond the limit, and are now very good friends of the repairmen.

An excellent illustration of this is furnished by the experience of a man who, after an unsatisfactory experience with a broken-down second-hand steam car that had been sold to him as being in first-class condition, acquired a 4 1-2-horsepower gasoline runabout which, though a good deal the worse for hard usage and neglect, was in good condition as far as the vital parts were concerned. The new owner was not only of a mechanical turn of mind, but also something of a practical mechanic. Before the arrival of his gasoline machine he made a thorough study of all the literature he could find bearing on that particular type of car, and interviewed repairmen and owners whenever the opportunity offered. Consequently he was well prepared to handle the car intelligently from the very first, although he had never touched a gasoline motor before.

After driving the car from the railroad station, and a few miles over the roads in the neighborhood of his home to become somewhat acquainted with the peculiarities of the machine, the owner spent many evenings investigating minutely the condition of the machinery, and it was not long before he was thoroughly master of the situation.

Evidently the first owner had been very careless, for the bearings of the road wheels were badly worn and there was a general looseness and lack of adjustment throughout the mechanism. Most of these things were soon set right, and the car was again on the road, running much better than when it first arrived.

The owner was, of course, delighted. "It was simply great," he said. "I didn't know the first thing about a gasoline motor until I got my runabout, but I was willing to take all sorts of chances on its being better than the old kettle I was bamboozled into buying because I was too green to know a bad thing when I sat in it with a man from the shop driving it and breaking his neck to make it go on the level. I spent a lot of good hard cash on the old steamer and finally got it into pretty good shape; but the first few months had left an indelible impression, and I disposed of the machine and got the single-cylinder runabout. I have never regretted the change.

"My greatest pleasure, next to driving the machine, was in getting intimately acquainted with its details. I got the thing running to perfection—smoothly and regularly. The whole machine was always in the best possible condition, and if any little thing went wrong I soon traced it up and set it right. I never let anything run that was not quite right, and as a result the motor seemed to run better and better the longer I used it. There were lots of little things I did that added to the comfort and convenience of handling the car, nearly all insignificant in themselves, but in the aggregate they amounted to a good deal. I never did anything without a good reason for doing it, so the car got to the top notch and stayed there, but I wasn't satisfied then because I couldn't make her any better.

"One day I met a man who had a car of the same make as mine, and of the same model, who told me he had succeeded in increasing the power of his motor about 25 per cent. by the use of special cams for operating the valves. Now, this seemed to be just what I wanted, so after satisfying myself by actual observation that his car was much more powerful than mine, I ordered a similar arrangement and put it on the machine.

"The change consisted in using cams that gave the valves a quicker and wider opening, held them open wide and closed them very quickly. I put on the new cams and adjusted everything as nearly right as I could and turned the crank expectantly. The very first explosion was a 'corker,' and after the motor got to running I could readily see that the explosions were a good deal stronger than they were with the old arrangement. When I got out on the road the difference was simply astonishing. The little hills didn't seem to make any difference at all, and the bigger ones that used to require the low gear were climbed on the high at good speed. The old mill would pump along on the level at a rate that almost scared me. The vibration was slightly increased, but I was willing to let that pass, for I had plenty of power now. I had a dos-a-dos seat on the machine, and I often took the car up pretty stiff grades for such a little car on the high gear with four people on board. It was when doing such work as this, however, that I began to wonder if the increased power was altogether a good thing; for when the motor speed was pulled down I could feel the tremendous kick of each explosion and get an idea of the strain that was being put on the parts. I believe the little old 4 1-2-horsepower single-cylinder worked up to as much as 6 horsepower. She used a little more gasoline than before and the motor had a tendency to get hot if everything was not just right; but I had no trouble, because I kept everything in good shape.

"One day, not many weeks after I had put on the new cams, I was running along on a level road at a good gait, with the motor working beautifully and everything lovely, when I felt a sudden jerk from the interior, and this was immediately followed by a confused grinding and thumping. I shut off the motor instantly, and as soon as the car stopped I got out with a sinking heart, for I knew it was something serious. And it was. The crankshaft was broken clean off on the flywheel side, just outside the main bearing, and the flywheel and everything else on the projecting end of the shaft had dropped several inches. Things were all out of line and they looked to me to be infinitely worse than they were. I felt as if I was at my own funeral when a repair man, for whom I telephoned, towed the machine to his shop. I said nothing to him about the valve gear. When the shaft had been taken out it was seen that there was a small flaw in it, not a very serious defect, but still a flaw. That put me in better spirits, for I thought that, after all, the shaft was an imperfect one, and would have held on all right, notwithstanding the hard kicking of the motor, had it been perfect.

"A new shaft was ordered from the factory and put in; and at the same time I had some new gears put in the planetary transmission; the old ones were pretty badly worn through having been run dry, judging from appearances, since the original oiling had become exhausted. The machine ran better than ever after the work had been done, and during the rest of the season—this happened late in the summer of 1904—I had nothing but the greatest pleasure with my little car. I kept it running until the weather became so disagreeable that it made riding unpleasant; and then I went to work and dismantled the whole machine, from top to bottom and from end to end. I took off everything that would come off, and there was not a piece of metal in the whole machine that did not receive an almost microscopic examination. I found a few little things that wanted renewing, and more that needed a little attention and fixing up; but on the whole things were in remarkably good shape.

"When, toward spring, I put the machine together, it was, as far as I could judge, almost as good as a new one. I put new bearings in the wheels; got an improved carbureter; screwed on a cylinder oil-cup of large size; put on a new and better ignition timer; and closely and carefully took

up all adjustable parts and made everything tight and snug. The engine had always been a good one; the compression was so good that it could not have been improved; the valves were in excellent condition, and did not even need grinding in. So when I got on the road in the spring I felt almost as if I had a new machine. I went at the hills on the high gear, and toted around four people and worked the old machine pretty hard without the slightest indication of trouble until a couple of weeks ago.

"One day, however, I noticed a slight thump, thump, thump, and then for the first time found myself up against a 'bug' that I could not catch. I ran the machine for a few days, the bump getting worse, and then noticed that the engine was losing power slightly and that it was very hard to turn it over when starting. I became suspicious, and the next day took the machine to the repair shop to be examined. I was just in time, for when I stopped the motor at the shop it did not spin around and come to a gradual stop, as usual, but stopped suddenly, with a stiff jerk that shook the whole car.

"To make a long story short, the shaft was bent and there was a crack at the point where the bend occurred; doubtless it was just getting ready to let go. Of course, there was nothing to do but get another new shaft put in. While waiting for the job to be finished, I have been doing some thinking.

"That new cam is at the bottom of the whole trouble. It is very nice to be able to run up a stiff hill on the high gear, but when the engine slows down the strain thrown on the shaft at each explosion is enormous, and the shaft was never meant to stand it. It's a wonder that it didn't give way long before. Running the motor fast is all right, because the load does not get a chance to accumulate between explosions. Anyway, what's the use of rushing up a hill? Perhaps I save five minutes on a long, stiff grade; and in a year it might amount to a total of three or four hours saved. Add to that a little natural pride, and that's all there is to it. On the other hand, there's the cost of two new crankshafts and the loss of the use of the car while they were being put in. Come to figure it up, I don't believe the game is worth the candle. I'm going to be very sparing with my high gear after this on steep hills. The valve gear is all right, and it can stay the way it is; but I'm going to handle her carefully so as to avoid straining the crankshaft by doing unnecessary stunts.

"With proper care and the renewal of small parts occasionally, I believe my machine will last for years; I don't like to guess how many. Mine has been used continually for three years. Half of that time it was badly used and neglected by the first owner, and half the time it was properly taken care of, if the crankshaft incidents are left out. But the engine is as good as new, and does not show the slightest sign of giving out. I can't see any reason why even a low-priced runabout should not last almost indefinitely with proper attention. But on the other hand, there is nothing that will show the result of downright abuse quicker than an automobile, and as more cars seem to get abuse than are well taken care of, they get a worse reputation than they deserve."

Interesting French Clutch.

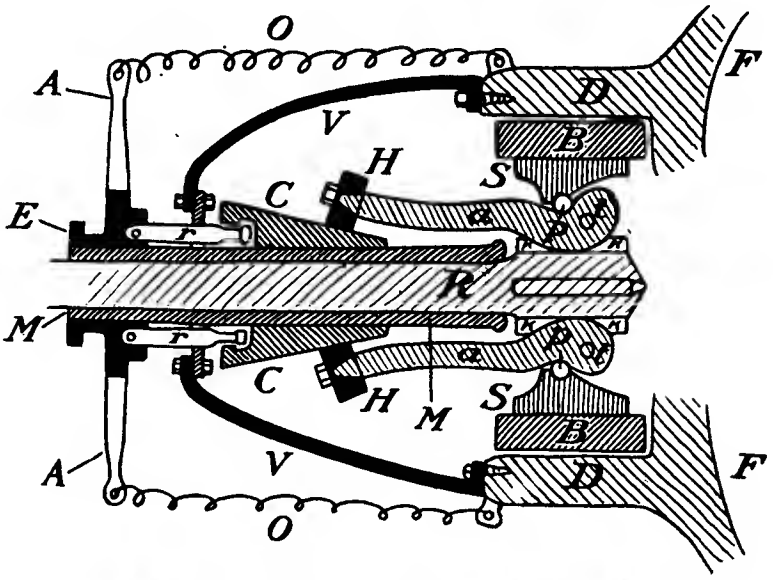
European engineers have of late given much attention to a new clutch system brought out by Professor Herisson. While the clutch has been tested on machinery of all kinds, and proved to be practical in operation, its application to the automobile is, of course, of the greatest present interest.

The clutch is perhaps the most delicate member of the mechanical equipment of the modern automobile, one of the great disadvantages of the usual leather-faced form being that progressive, smooth engagement can be obtained only by allowing the clutch to slip as it is thrown in; and this friction inevitably tends to destroy the leather, and so disturb the fine adjustment of the clutch. The diameter of the leather clutch is necessarily quite large, even when the power transmitted is small, and this makes it difficult to provide a flywheel with fan-blade spokes to create a draught and so assist the cooling of the radiator—a practice which is gaining in favor. The inertia of the driven member is necessarily great, and when the clutch is disengaged its momentum keeps the gears in rapid motion and speed changes are rendered difficult, especially for the unskilled, and the motion is destructive to the gears. The thrust of the clutch spring is frequently difficult to take care of, and causes much wear in the bearings of the crankshaft and of the primary gearshaft.

While these disadvantages might be overlooked in low-powered cars, they become very serious in cars of high power, and are a positive nuisance, if nothing worse, on racing machines, in which they cause an immense amount of trouble. The statistics given in THE AUTOMOBILE following the Paris automobile show indicate a considerable decrease in the use of leather-faced clutches, as the reader will doubtless have observed.

The apparatus here described was brought to the attention of the French Academy of Science by M. Leaute. It not only overcomes the defects just referred to, but also embodies a number of advantageous features of its own. This clutch system makes unnecessary the delicate adjustment which is essential to the proper operation of a leather-faced clutch; and the smooth, progressive action in taking up the driving strain makes it possible to use a comparatively small margin of safety in calculating the strength of the parts.

Referring to the engraving, *F F* is the engine flywheel, *D D* is a drum formed integral with the wheel, and ground truly cylindrical inside. A ring, *B B*, of cast iron of special quality is split at one point like a big piston ring; normally this ring is smaller than the drum, which it does not touch unless caused to expand. Two shoes, *S S*, bear against the inner surface of the ring and serve to expand it when they are pressed outward. This is accomplished by the arms *a a*, which are pivoted at *t t* and exert pressure upon the shoes *S S* through the hardened steel rollers *p p*. The arms *a a* rotate with the primary transmission shaft *R*, resting in slots or keyways, *k k k k*, cut in the enlarged end of the shaft. The long ends of these arms are fitted with hardened steel rollers *H H*, and may be pressed apart by the cone *C C*, which is formed of four independent wedges slidably keyed on the sleeve *M*. The sleeve runs loosely on shaft *R*, but always revolves with the flywheel, being joined rigidly to it by



LONGITUDINAL SECTION OF HERISSON EXPANDING METAL-TO-METAL CLUTCH.

the casing *V V* bolted to the flywheel and to a flange on the sleeve, as the engraving shows. Four push rods, two of which are seen in the engraving at *r r*, pass through and are guided by holes in the flange on the sleeve. These push rods are moved by a clutch collar *E*, operated by a fork in the usual way. Cavities are cut in the wedges to receive the heads formed on the ends of the push rods, the heads fitting loosely into the cavities. A small spring in each cavity (not shown in the illustration) keeps the push rod head clear of the wall of its cavity when no pressure is being applied to it through the collar. Four arms, two of which ar seen at *A A*, are formed integral with the collar, and carry at their extremities the ends of tension springs *O O*, the tendency of which is, of course, to keep the clutch in engagement.

Supposing now that the engine is running and that the clutch pedal is depressed; the system now runs idle. But release the pedal, as suddenly as you please, and, impelled by the springs acting through the pushrods, the cone is moved forward until two of its wedges are stopped by the rollers *H H;* while the other two wedges continue to advance until the small springs which keep the push-rods clear of the walls of their cavities close up. It will be seen that the two wedges not in contact with the rollers have advanced a little further than the other two, and thus form a sort of step which the rollers must climb as the cone rotates. The instant the rollers leave the two wedges with which they first came into contact, these wedges are free to move forward, in their turn, as far as the little springs permit, and thus another step is formed, upon which the rollers must climb; and so the progressive action goes on, each little step forcing the arms, and consequently the shoes *S S*, further apart and bringing the ring *B B* into closer contact with the drum *D D*. The forward movement of the cone wedges must continue as long as there is any slipping; when the slipping ceases the cone and the flywheel will be running at exactly the same speed; but should any slip occur, the rollers will always find a pair of wedges slightly advanced and forming a little step to tighten up the friction band a little more, until slipping stops. The clutch is thus self-adjusting while running, automatically taking care of any slipping that occurs.

Suppose the play allowed the push-rods in their cavities is 1-20th of an inch; then, when the rollers come in contact with one pair of wedges, the other pair will move forward 1-20 of an inch before stopping, and the cone as a whole will advance 1-10 of an inch for every half revolution it makes. If the total length of travel allowed before absolute drive takes place is two inches, it will take ten complete revolutions of the flywheel, relative to the shaft *R*, to produce absolute drive. The rapidity with which the clutch engages is determined by the designer when he figures the extent of each step; and once this is set, the clutch cannot be altered except by removing metal from the heads of the push rods to increase their play in the wedges. The tension of the springs is a matter of indifference so long as it is sufficiently strong to overcome the friction of the different sliding parts and the thrust of the rollers as they mount the wedges.

A clutch of this system was seen by the writer at the works. It was used as a coupling between a dynamo and an electric motor. Its extreme diameter was seven and a quarter inches, and it transmitted 30-horsepower at 150 revolutions a minute, this figuring out at 300-horsepower transmitted at 1,500 revolutions a minute—the normal speed of many automobile motors.

The advantages of this clutch system may be summarized as follows: The ability to transmit power is limited only by the actual resistance of the parts, the clutch gripping tighter and tighter until slippage is stopped; small diameter, making it easy to place in the car without interfering with other parts; small inertia on account of its small size and light weight, and the consequent absence of ill effect on the gears; entire absence of end thrust at all times.

Road Work in Rhode Island.

Twenty pieces of state road, from half a mile to two miles in length and fourteen to thirty-two feet wide, were macadamized in the little state of Rhode Island during the year 1904, at a total cost of $79,397. The total mileage of new road, as shown by the third annual report of the State Board of Public Roads for the year 1904, recently issued, is 16.3, and the average contract cost per mile, $4,953.05.

The total number of miles of state highway in the commonwealth is 249, of which 98.42 miles had been improved up to January, 1905. The standard width of the improved state roads is fourteen feet. A comprehensive plan of improvement of all the state roads was adopted at the January, 1903, session of the General Assembly, and at that time the Board of Public Roads estimated that six years would be required to complete the work, with a total appropriation for the purpose of $900,000 during the six years. But in the report for last year the board expresses considerable disappointment over the fact that the appropriation of $125,000, recommended last year, was cut to $100,000, and points out that with the annual appropriations limited to the latter sum it will require nine years to carry the plan to fulfillment, unless the cost of construction of short stretches of road exceeds the price for larger contracts, in which case it will take longer.

The report, which is brief, should be of interest to automobilists and other good roads' advocates, as it contains useful observations regarding the value of hard roads and suggestions concerning maintenance, is illustrated by forty-seven full-page half-tone engravings from photographs showing the conditions of the roads before and after improvement, and at the back contains a copy of the blank giving standard state specifications for stone roads.

"Now that the telephone is found in every rural community and the motor car has appeared," says the board in its introductory, "it is not too optimistic to predict that with the completion of the state road system the country towns will become to the city what its immediate suburbs now are, and the country districts will be brought nearer to each other and to their centers of trade, greatly relieving the isolation imposed by poor roads." The report dwells at some length on the "signs of drifting countryward" with the improvement, counteracting the deplored rural depopulation; upon the increase of travel and the increase in property values, and devotes much space to urging the importance of providing for the proper maintenance of roads after they have been reconstructed.

Regarding the influence built upon the minds of the people of the sample stretches of stone roads, the report says, "There is an evident increasing dissatisfaction over the old dirt roads maintained in the old style way, a feeling largely due, no doubt, to the contrast experienced in riding upon a section of new construction after having ridden over a common dirt road, especially at certain seasons of the year, when the dirt road is at its worst. The average man will be content to use in his occupation the tools and machinery of his predecessor until the advantage of his more enterprising neighbor is clearly seen to be due to his use of later inventions."

The board asked for an appropriation of $150,000 to carry on the work in the year 1905, of which sum $25,000 was to be made available after January 1, 1906.

DULUTH CLUB TOUR.

ST. PAUL, July 29.—Word has been received by the St. Paul Automobile Club that the Duluth A. C. plans a tour to the Twin Cities in August. The Duluth club has passed a resolution providing for the trip and directing the committee on good roads to make arrangements. It is probable that the Duluth automobilists will leave the Zenith City Saturday, August 5.

The distance from Duluth to St. Paul by wagon road is 170 miles. The tourists plan to leave Duluth Saturday morning and arrive in Sandstone in the evening, and continue the trip to St. Paul on Sunday.

One of the purposes of the trip is to secure a good roadway from Duluth to the Twin Cities. A chart of the road will be made during the trip to show what improvements are necessary, and the automobile clubs of St. Paul, Minneapolis and Duluth will begin a campaign to secure the improvements desired.

It is expected that about twenty machines will make the trip.

Taxation of Autos in France.—European Duties.

Special Correspondence.

PARIS, July 14.—The French Government has a direct interest in the increase of mechanical traction. The humble cyclist enriches the Treasury by 6 francs ($1.20) a year for every machine owned; 12 francs ($2.40) is paid on every motorcycle having one seat, 24 francs ($4.80) for a machine with two seats, and 36 francs ($7.20) for those having three seats. A trailer is counted as part of the motorcycle, the revenue tax increasing with the total number of seats provided.

Automobiles figure more largely in the receipts of *Monsieur le Ministre des Finances.* The industry as a whole pays the *patente*, or trading tax, common to every industry or trade in France, from the garret workshop to the largest factory, and varying with the locality and the nature of the business carried on.

Its rate, however, is so low as to handicap no trader. It is the automobile owner who pays directly into the coffers of the Government. Thus, in Paris, a tax of $10 a year is levied on every automobile having one or two seats, with in addition $1 per horsepower or fraction of a horsepower. For automobiles having more than two seats the fixed annual tax is $18, with $1 additional per horsepower.

In the provinces the fixed tax is $8 for a two-seated automobile in towns of more than 40,000 inhabitants, and descends to a minimum of $4 in towns of 10,000 inhabitants or less. For automobiles with more than two seats the amount is $15, $12, $10 and $8, according to the population of the town or commune. To this must be added $1 additional per horsepower.

The owner of a 40-horsepower four-seated automobile in Paris would pay a revenue tax of $59 a year, composed of the $18 fixed tax, $40 for the 40 horsepower, and $1 prestation tax. If the car should be sold during the course of the year. the amount has to be paid again by the new owner. This measure applies only to Paris, and is a source of some resentment, for it is obviously unjust that the Government should be paid an annual tax several times in the year, because a car has changed owners.

The *prestation* tax is a survival of the ancient road-making tax or *corvée.* In the days when "liberty, equality and fraternity" were unknown, every peasant was obliged to give his services gratuitously for several days' road making. Modified and rendered more equitable, the principle yet remains. Formerly the owner of a horse and cart offered his equipage gratuitously for a certain number of days. Now the personal tax can be paid in money, the owner of an automobile being called upon to contribute at a rate per horsepower of not more than one-third that imposed upon the highest rated animal. The amount varies with circumstances and locality; $1 per year for a 40-horsepower automobile registered in Paris is a generous estimate.

Regulations for Constructors.

In France the control of automobiles is under the direction of the *Service des Mines*, to which body every constructor must submit each type of car for approval. Automobiles are divided into two classes; those not exceeding a speed of 30 kilometers (19 miles) an hour, and those capable of exceeding this limit. The regulations to be observed by builders are very simple and touch only on those points which are necessary to assure the safety of the public. When a type of car has been accepted by the Service des Mines, the builder is at liberty to place on the market any number of vehicles of this series, which are accepted and granted a registration plaque on a simple declaration. Steam vehicles are treated differently; every car must be examined separately, tested, and stamped with the official seal before it can be put into circulation.

Vehicles capable of traveling at more than thirty kilometers on hour must carry two plaques, one in front and one behind, of regulation size and color, and consisting of Arabic figures and letters. The letters indicate the geographical department in which the car is registered. Constructors are granted a small number of extra regulation plaques to be used on new cars undergoing trials before being delivered to customers. Curiously enough, agents, who have frequently need of these provisional registration numbers, are not granted this concession.

European Customs Regulations.

The customs duty on foreign cars entering France is $12 per 100 kilos (220 pounds) under the general tariff, and $10 where a favored nation clause exists. Tourists entering France and making a declaration that their visit is only temporary, are given a receipt for the duties paid, and the amount is refunded if the country is left within a period of twelve months.

Following are the regulations in other European countries:

Germany.—Customs duty $2 per 100 kilos for all automobiles. Tourists entering the country pay a duty of $37.50 for each automobile, regardless of size and weight. This sum is paid and a declaration made on entry, and the amount is repaid at any customs office on leaving the country.

Austria.—Tourists must make a declaration on entering the country, when both motor and car body will be stamped. The duty is refunded on leaving the country and although not absolutely necessary, it is advisable to state, on entering, by what customs office the country will be left.

Belgium.—Duty is 12 per cent. of the value of the car, on the owner's declaration. It is advisable not to place the value unreasonably low, as, if not considered sufficient, the authorities have the right to seize the car. For a short stay, a declaration must be made, duties paid, and the amount is refunded on leaving the country.

Denmark.—The formalities are the same as for ordinary merchandise, viz., 4 cents per kilo. (2.2 pounds). Tourists must make a formal declaration that they intend to leave the country after a short stay, when their automobiles will be admitted as ordinary baggage, free of any duty.

Spain.—Customs duty on the motor $3.75 per 100 kilos; four-seated car bodies, $200. Tourists pay the duties on entering, and are reimbursed on leaving the country. In introducing an automobile, the exact weight of the motor must be declared.

Great Britain.—No duties.

Greece.—Three-wheeled cars pay a customs duty of $60; four-wheeled cars, $80. Nothing is specified by the authorities as to temporary admission.

Italy.—Cars with more than two wheels and less than five springs, pay $22 each. Automobiles having more than two wheels and five or more springs, pay $66 each. Tourists must make a declaration, their car is sealed, and the amount is returned on leaving the country.

Luxembourg.—Custom duty 150 marks ($37.50) per automobile. Tourists must make written application ten days before entering the country, to the customs officials at Luxembourg. An identification ticket is given on entry and all duties returned on leaving the country.

Netherlands.—Customs duty 5 per cent. on declared value. Tourists can enter free if the driver of the car is provided with a permission from the Minister of Public Works.

Portugal.—For a complete car the customs duty is about $77. Tourists pay on entry, but are reimbursed on leaving the country.

Russia and Finland.—Two-seated cars pay $86.50; four-seated cars pay $126.75. Tourists must pay full duties on entering the country. A receipt will be given on passing the frontier, and if not more than six months are spent in Russia, the amount will be repaid from two to ten months later. A passport is absolutely indispensable.

Sweden and Norway.—Duty is 15 per cent. ad valorem on presentation of the invoice. Tourists' cars are stamped at a cost of 12 cents. A permission is sometimes necessary, costing $1.04. Fifty per cent. of the value of the car must be deposited (this is calculated on a very lenient scale); and the total amount is repaid on leaving the country.

Switzerland.—Custom duty, $4 per 100 kilos on tare weight of car. If exact weight of motor is certified by builder, the tax is 80 cents per 100 kilos. Tourists pay duties, which are repaid on leaving within a period of six months.

MERRILL'S "GRANITOID" HORSELESS DRIVEWAY IN KANSAS CITY.

TURKEY.—A duty of 8 per cent. is collected, of which 2 per cent. will be refunded upon leaving vountry. An excessively high assessment should be guarded against.

It is sometimes necessary, and always advisable, to have an authentic description of the automobile, weight, number, etc., signed or stamped by the manufacturer, to be presented at the frontier or elsewhere. Previous notice to customs officials as to entering or leaving a country will facilitate matters in many cases.

ROUMANIA.—Duties are according to a special tariff. Deposit will be refunded when machine is taken from the country. Previous notice is advisable.

A Horseless Driveway.

The "horseless driveway," illustrated in the accompanying engraving, is one of the innovations that has marked the retirement of the horse from the stables of F. C. Merrill, of Kansas City. In place of the old gravel driveway, which Mr. Merrill considered a disfigurement, two strips of "Granitoid," each sixteen inches wide, have been laid from the automobile house to the road, being spaced so as to take the wheels of a car, leaving a wide strip of grass between the tracks. It will be seen from the photograph that the "horseless driveway," which is built level with the lawn through which it runs, is anything but unsightly.

Autos in Muncie.

Muncie, Ind., a city with a population of about 30,000, has more than a hundred automobiles, and the members of the local automobile organization, the Gas Belt Automobile Club, believe their town is proportionately the biggest automobile center in the United States. The club was organized four years ago when there were only two or three machines in Muncie. At present there are machines of every American style, from the motorcycle to the finest American car.

CAPTAIN STEPHENS' DECORATED CAR IN MUNCIE AUTOMOBILE CLUB PARADE.

An automobile parade was held during the state meeting of the Elks of Indiana in June, and more than forty machines were in line, headed by the appropriately decorated car illustrated herewith. This car was driven by Capt. Jesse A. Stephens, who had charge of the parade. The Elks and their wives were "automobiled" around the city and royally entertained.

Frank Ball is the president of the Gas Belt A. C. and Harold C. R. Wall is secretary-treasurer.

During a visit of Mayor Tom L. Johnson, of Cleveland, to Chicago recently, he and Mayor E. F. Dunne, of Chicago—the two municipal ownership mayors—made an inspection of the traction lines of the Windy City, accompanied by Attorney Clarence S. Darrow, counsel for Mayor Dunne. The trip was made in a Winton car, with which Mayor Johnson, who is shown at the wheel in the accompanying engraving, is very familiar, having long been an enthusiastic owner and driver of this make. Chicago's new executive occupies the other front seat, while Mr. Darrow occupies the right-hand seat behind.

"Snellpaardelooszoondeerspoorwegpitroolrijtung" is said to be the newest of the names of the automobile, and authorities agree that "Red Rover" and "Drab Devil" and "Blue Blazes" and even "White Whizzes" are outclassed. The unpronounceable is of Flemish derivation, and comes from "snell," which means rapid, "psadeloos," which means horseless; zoondeerspoorweg," meaning without sails, and "pitroolrijtung," which implies that a thing is driven by petroleum.—*Toledo Journal.*

Home from the Gordon Bennett Race.

WHEN the big White Star liner Celtic swung into her dock in the North river, New York, last Saturday, she had on board Joseph Tracy and Herbert Lyttle, of the American Gordon Bennett team, and the tire experts, besides others in the trade who had gone over as spectators.

In the little group that waved greetings to the waiting friends on the dock were O. E. Schaaf, of the Pope-Toledo interests; Carl Fisher, of Indianapolis; Al Poole, who acted as mechanician on the Locomobile racer, and Clifford Myers, of the Diamond Rubber Co.

Those who had followed the fortunes of the American team in the cable and mail reports were naturally eager to get the personal impressions of the contestants. Questions were put and answered as rapidly as the exhaust of a racing car, until the customs formalities had been finished and the group scattered to resume the humdrum of everyday affairs.

"How does it feel to start in the classic Gordon Bennett?" was asked Joseph Tracy, who piloted Dr. Thomas' Locomobile car in the great event.

After a reflective pause he replied: "It doesn't feel very different from starting in the Vanderbilt or any other road race. Of course, in an international event one realizes he is representing his country, and not merely a particular car, and that his performance will be watched by a great number of people of many different nationalities.

"The fact that the race occurs in a foreign country does not affect one as much as you might suppose, for the reason that you know that if any repairs have to be made you cannot call on any one to assist you outside of your mechanician, who in my case was Mr. Poole.

"Getting your car out in the gray of the morning does not affect you particularly, except that you feel 'out of place' for quite a while. As a matter of fact, you don't feel thoroughly at home until after the car has been started and is well under way."

"What about the feeling of being in competition with drivers of international reputation?" was asked.

"Of course, you do not attempt to hide the fact that you are up against the greatest drivers in the world," he replied; "neither do you try to jolly yourself thinking that you might win by chance. You just know that you have got to fight, and fight against fellows who have been doing this kind of thing for several years."

"Did you get to the Grand Stand before any of the cars had been started?"

"No; three or four cars had been started when we got there. As a matter of fact, we did not come right down to the line. They told me that we would see numbers on the fence corresponding to the numbers on the cars, and that we were to line up opposite my number; but I could not find any numbers. By the way, after the race some of the French papers printed a statement that we did not get to the starting line on time. This was not so. We came to the line on time. Just as we got down to the line the second car started. We were then but a short distance back. Then the car No. 17 started, and I had five minutes. I then let my car roll down to the starting line."

"What were the surroundings at the starting line?"

"In general they were about the same as at the Vanderbilt race. The scene at the roadside was practically the same, with the usual number of people rushing around, and the usual amount of rumors as to what had happened to the drivers who had started before me. There was about a score of Americans at the start. They crowded around and shook hands, told me to be careful, and not to get 'rattled,' wished me good luck, and such like. Among them were Clarence Grey Dinsmore, Mr. Nelson, of the Pope-Toledo Paris office; Mr. Myers, of the Diamond tire; O. S. Johnson, of the Automobile Club of America; Mr. Thomas, treasurer of the Locomobile company; A. J. Moulton and E. T. Birdsall, of New York, also Mr. Petard, one of THE AUTOMOBILE representatives. There seemed to be a hundred photographers about, and all were busy taking pictures."

"Did you get away without any hitch?"

"Yes, we got away very nicely. I started on the first gear and made a comparatively slow start, owing to the fact that I had only two speeds, my intermediate gear having been broken before the race on my way down from Havre. After starting I probably went about a hundred yards down hill on the low gear, and went into my high gear without any trouble, but it was rather slow in picking up speed, because by that time we were going up hill and it was a big jump from the low to the high."

"Do you think there is any advantage or disadvantage in starting as a late number in such a race?"

"Yes, there is a disadvantage from the fact that the time that must elapse between your starting time and the finish of the race is less than the time of the earlier starters. For instance, seventeen cars started before me, which meant about one hour and thirty minutes, and we had just that much less time to complete the four rounds in. Of course that wouldn't make any difference in the case of a car that met with no mishaps and was fast enough to win."

"How far did you get without any trouble?"

"To Rochefort. We made pretty good time, too, but nothing like the time that we made in the second and third rounds. We had not been around the course in a racing car before, and for that reason did not know how fast we could take the corners, and they were numerous. There were a lot of bad ones even before reaching Rochefort."

"At Rochefort?" suggestively.

"Well, when we got to Rochefort we were halted for about fifteen seconds while one of the officials put a ticket in our box. After we had started up again, and gone a few hundred yards, we struck a 'hairpin' corner and broke our right-hand chain. We then pulled to one side, and commenced to repair the chain.

"The road here was fairly wide, and Théry passed us going at a pretty good speed. We were laid up with this repair for about twenty minutes. It was really a bolt where the chain was joined together, and this was broken in one of the links, so we had to punch it out. It was rather a nasty job, but we finally got it out and put in the new one."

"After this what happened?"

"We ran on then to just beyond Lastic, where we stopped at our supply station and took a new chain aboard. Then we went on and stopped at the Pontgibaud control just behind the Napier. We were held up four minutes to let this car get clear of the narrow road ahead, but while the officials were solemnly counting off the seconds Earp was just around the corner, out of sight, fixing his gasoline tank, which had come loose. We finished that round without any trouble, and passed the grandstand going about seventy-five miles an hour.

"No, you could not distinguish anything at the stand. Just a blur of faces and waving handkerchiefs back of the fence.

"What happened on the second round?" repeated Mr. Tracy. "Why, at Rochefort, just after leaving the control, the clutch collar seized. First I knew of it, there was a tremendous racket under our feet. That reminds me we had had to take out the floor boards to get the car under the weight, and so my feet were hanging in the air except when they were on the pedals, and toward the end it got pretty tiresome; in fact, after the race stopped I could not walk for a few minutes after getting out of the car.

"But about the clutch collar: When the noise started I tried to stop the car, but couldn't get the clutch out. The throttle had been adjusted so as not to close altogether, and the only way to stop the motor was by the cut-out button on the wheel. I got my finger on the button all right, and almost immediately saw that we had to go around the hairpin corner where we had broken the chain on the previous round. It was impossible to keep my finger on the button, as I had to swing the wheel so much to get around, and every time my finger slipped off the button the motor started up and drove the car ahead. We had an exciting few moments until I fot the car into the straight and stopped it just alongside the fence. Our troubles on the corner were aggravated by the action of the

brakes, which I was compelled to jam on tight.

"After stopping we found that the clutch collar had seized, and we effected a temporary repair that enabled us to get the clutch out if needed, but at the risk of altogether disabling the clutch mechanism.

"'Afterwards?' Well, I drove the car without drawing the clutch except at the controls—simply using the throttle—when we stopped and started the motor.

"After we got the clutch trouble straightened out we got along very nicely until we came to Lastic, where our supply station was located. Here we decided that, as our right back tire was pretty badly worn, we would have a new one put on, and while the tire was being changed we took on some water and gasoline."

"How did the clutch trouble affect your subsequent driving?"

"It made the driving very difficult, and also compelled me to go much more slowly than I could have done, for the reason that I had to take the corners on the high gear and without drawing the clutch. We got around to the grandstand again, but had considerable trouble coming down the last chain of hills into Clermont on this account. The throttle was adjusted so as to just keep the engine turning over, and usually when a turn was encountered it was too sharp to be taken at the speed the engine would drive the car, even when turning over slowly, so I had to use the cut-out button on the steering wheel. The steering wheel had to be moved so much and so often that my fingers slipped off the button many times, and the motor, of course, started to run and drive the car at critical points when the speed due to momentum was as high as was safe.

"When we reached the grandstand again I noticed that the stretch of road in front of it was very much cut up. A lot of small stones had worked up to the surface, making steering very unsteady at high speed.

"On the third round we got to the tire control, about one and one-half miles beyond the grandstand. We stopped to put a shoe on, and were then told that the race would end at 4:30 o'clock. It was then about 2 o'clock, so we decided we would put on a complete set of tires, so that we would not have to stop again, as by that time we had gotten to know the course. Then we started out after having bathed our faces with cologne, which was suggested by Mr. Maudsley, of Coventry, and which was very refreshing indeed. Nothing more happened after that. Everything was going fine, even when we got past the hoodoo Rochefort turn, and on to Laqueuille. There they told us that the race was over."

"Did you come back to the grandstand then?"

"No; they would not let me drive back immediately, so we pulled off to one side of the road. One of the men at the control, Mr. Fenton—who is connected, I believe, with the English Gladiator car—gave us some roast chicken and champagne. I never ate so fast in my life. I was ashamed to ask for more. After stopping here for probably half an hour an official came along and informed us that the course was open, and then there was one devil of a stampede to get on the course. All the cars that had been lined up along the road were driven out on the course. Everybody seemed to get out on the road—thousands of people and hundreds of cars."

"From your own experience, was there much passing or repassing on the road during the race?"

"No, not very much. Some of the French papers stated that the French drivers were blocked by the Americans, but the only French drivers who passed me were Théry and Callois. I had instructed my mechanician to keep a sharp outlook and tell me whenever anyone was overtaking us, so that I could turn out and let him pass. In both instances, when Théry and Callois passed me, the road was fairly wide and I pulled to one side and let them go by. When Théry passed I went after him to see if I could hold him. I found I could do so easily on the straights, but not on the turns.

"We also raced with Burton on the second round. After passing Lastic he went by just before we started, and then we passed and repassed each other several times until we got to the tire control just beyond the Grand Stand, more than halfway round the course. His car was faster than mine, and then he knew the course, and could drive where we could not, as he had all of his gears. We started waving hands at each other toward the finish. We also passed the Napier three or four times, and they also passed us. At one time Burton passed us on a corner. He seemed to be going too fast to get around safely, but by braking he managed to slow down and get around without mishap. I saw pieces of stuff flying off his wheels, which appeared

HAIRPIN CORNER AT ROCHEFORT ON AUVERGNE CIRCUIT WHICH PROVED TO BE A HOODOO FOR THE LOCOMOBILE RACER.

to me to be rubber from his tires. About half a mile further on we passed him putting on a new shoe.

"No," said Mr. Tracy, in reply to an inquiry, "there was no particular danger in passing. The cars were about five feet apart, I should say."

"Did you experience any other troubles?"

"Yes; in the second round the dust began to get underneath my goggles and into my eyes. The dust was not in clouds, but was rather a kind of fine mist. It was hardly visible, but still it was there, and was made very unpleasant by the tar they had put on the road, which gave it a sort of caustic effect. It very much interfered with my sight. On the third round my eyes began to pain me very badly, and after the race, when I got back to the garage, I could hardly see, and had to go to a drug store and get them attended to.

"It was reported that Théry had had his goggles made by an eminent Paris oculist. A man cannot be too particular about his goggles. In a race like this the goggles should be made to order, and particularly made to fit the face. Earp also had trouble with his eyes, and I saw him in London ten days after the race and he was then wearing smoked glasses. It was common talk in Paris that Théry's eyes are ruined as a result of the elimination trials and the Gordon Bennett race."

"How about grub during the race?"

"Well, Poole put some chocolate into my mouth occasionally on straight stretches, and we drank some water while we were fixing the clutch collar in Rochefort."

Asked how his car behaved in general, Mr. Tracy replied:

"The brakes acted finely. I only used the foot brake—hardly ever used the hand brake, except in coming into a control, for the simple reason that I could not know when we were going to strike a corner when one would have to use both hands in steering and wish he had another one in order to swing the wheel about. If the foot brake had given out it would have made our run very much slower. The radiator system and ignition worked perfectly, and the engine did not miss fire a single stroke."

"Was the scrutiny of the officials at the weighing in very close?"

"Yes, very. They inspected everything, counted leaves in the springs and stamped the wheel hubs. One had to answer a whole lot of questions; they had papers to be filled out about the weight of the car, size of the wheels, tires, springs, method of ignition, size of cylinders, kind of carbureter, whether automatic or not, kind of cooling device, the manner in which the engine was oiled, the kind of clutch, and what it was faced with; kind of gear box; how many speeds and brakes. You had to satisfy two lots of inspectors; the government officials had to know if the car was thoroughly safe to go in a race on the public highways, and you had also to satisfy the race officials that the car complied with the regulations. It took two hours altogether to get through.

"Some of the drivers had spare cars, all of which were weighed in and numbered the same as the cars driven in the race. These spares were provided so that in case anything happened before the race proper they could be substituted."

"How did the Auvergne circuit compare with the Vanderbilt course of 1904?" persisted the inquisitor.

"The Vanderbilt course was child's play compared to it. In the Vanderbilt course turns were the exception, but in the Auvergne the turns were the rule, and one would wonder what was the matter when he came across a straight stretch. There is a great difference between trying to get familiar with a course eighty-five miles long and one only about thirty miles long. With a course like the 1904 Vanderbilt one could afford to be less familiar for several reasons. In the first place, lack of familiarity with the Vanderbilt course would not necessarily mean that it would be dangerous to race over, but would simply mean one would lose a little time on the turns. But with the Auvergne circuit, not knowing it was absolutely dangerous even at low speeds. Another thing is that if you did not know this Auvergne circuit you would lose much more time on it, as there are so many corners, and all sorts of corners, whereas on the Vanderbilt course there were but four turns. The loss of three or four seconds on each of the several hundred corners on the Auvergne circuit would amount to a whole lot of time, and easily lose a man the race. In our own case, even had we experienced no tire or mechanical troubles, we could not have made very fast time in the Gordon Bennett, as I had no experience on the course in a racing car, and the first round, especially, we had simply to feel our way."

"Did you have any chance to let the car out on the way down from Havre?"

"Yes, we had some fine sailing then. The roads were perfect, and there were no obstructions. There was a row of trees on either side of the road, and nearly all the way we did nothing but sit up and let her go. As we ran along at about eighty miles an hour the trees looked like a fence, and when you met a countryman with a wagon he invariably turned out. There were hundreds of machines on the road, all going as fast as the motors would permit, and good accommodations everywhere for men and machines."

By this time Mr. Tracy showed signs of fatigue, and it was suggested that perhaps American chicken tasted as good as the kind they raise at Laqueuille, even if the fizz water was three thousand miles away from the place of its origin. He agreed.

James Bjorkman has his automobile so well trained that he comes down town these days. Many people saw it for the first time to-day.—*DeKalb (Ill.) Review.*

France and the Vanderbilt Cup Race.

Special Correspondence.

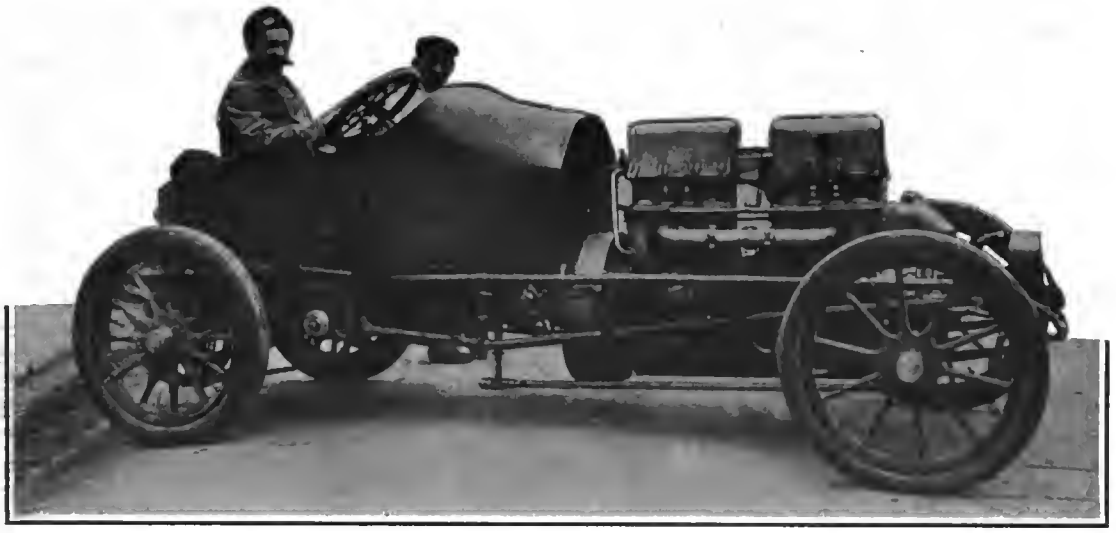
PARIS, July 21.—Although France has announced her intention of not taking part in the Gordon Bennett race of 1906, it is not yet known whether or not a race will be held, as no meeting of the parties interested has yet been called. Since the winning club refuses to organize next year's contest, the future of the cup will have to be settled by an international meeting in conjunction with the donor of the trophy. The object of France is, avowedly, to kill the Gordon Bennett trophy, the conditions under which it is run being considered too prejudicial to the French industry.

The question now being discussed is: Should not the same line of action be adopted toward the Vanderbilt cup as has been followed in the case of the Gordon Bennett trophy? France is bound to take part in the 1905 Vanderbilt race, the five cars having been chosen at the eliminating trials last month and the engagements officially made. It is urged that the Automobile Club of France pass a resolution similar to the one adopted in connection with the Gordon Bennett race, namely, whether France wins or loses the Vanderbilt cup in 1905, she will not take part in this event in 1906.

Excepting that the number of cars allowed each nation is increased from three to five, the conditions for the Vanderbilt cup are in every respect similar to those of the Gordon Bennett trophy, against which so much French opposition has been raised. One great annual international automobile race is certainly preferable to a number of international events. France, however, desires that this crowning trophy—whether it be the Gordon Bennett, the Vanderbilt cup or her own Grand Prix—should be run on the lines of proportionate representation, in which she would obtain a larger numerical standing than other nations on account of the greater importance of her industry.

Next year the Vanderbilt cup race will be run in the country to which the 1905 victor belongs. Should France be successful this year, she would be bound by the regulations to organize the 1906 contest in this country. This, it is pointed out by the advocates of proportionate representation, would re-create a state of affairs against which France has long been protesting. To avoid this, the only course open is to declare before the race is run that, whatever may be the result, France will not compete in the 1906 Vanderbilt race under its present conditions.

With the rising importance of America, Germany, England and Italy, all of which countries are willing and eager to run in the Gordon Bennett or Vanderbilt races, it will probably be difficult for France to stick to her present line of action. The coming battle of the cups is certain to be keenly fought and watched with interest by the whole automobile world.



RIGOLLY IN THE GOBRON-BRILLIE RACER WHICH COVERED THE KILOMETER IN 23 1-5 SECONDS AT OSTEND.

Fast Straightaway Flights at the Ostend Meeting.

Special Correspondence.

OSTEND, July 14.—This year's meeting at Ostend opened on July 9 with speed tests. The most interesting of these was naturally the heavy racing class, in which Rigolly, with a Gobron-Brillie car, covered the kilometer with flying start in 21 3-5 seconds, an average speed of 103.5 miles an hour. The course was laid out on a stretch of fine road. The time given for the kilometer is the average time made over the mile and kilometer course. Wagner, with the Darracq that ran in the Gordon Bennett eliminations, covered the kilometer in 23 1-5 seconds, an average speed of 96.4 miles an hour, which is considered a very fine performance for a machine built for the terrible Auvergne course. Rigolly's time was one-fifth of a second over the record established last year at Ostend by Baras with a Darracq.

In the light racing class De La Touloubre drove a Darracq over the kilometer in 29 2-5 seconds, or at the rate of 75.9 miles an hour. The record for this class is 26 seconds, made by Hemery with a Darracq.

The world's kilometer record for motorcycles weighing less than 110 pounds was broken by Cissac on a Peugeot, the distance being covered in 28 1-5 seconds, which corresponds to a speed of 79.3 miles an hour. The best previous record was 29 1-5 seconds. Giuppone, also on a Peugeot motorcycle, covered the distance in :28 3-5.

In the tourist classes the fastest time was made by a 60-horsepower Mercedes, which was the most powerful car entered, and which ran the kilometer in .37. A 7-horsepower Oldsmobile entered in the class for chassis costing not more than $1,000 defeated all its competitors by doing the kilometer in 1:32 2-5.

The second day's events consisted of speed tests over five and ten kilometer courses for the same classes. Wagner, with a Darracq, covered ten kilometers from a standing start in 4:08, his average speed being 90.3 miles an hour. His time makes a new record for this event. Rigolly's time for this event was disappointingly slow, being 6:32. Giuppone, with his Peugeot motorcycle, made the best time in his class, covering the ten kilometers in 5:09 3-5.

In the class for touring-car chassis costing more than $2,000 the fastest time for five kilometers was made by the 60-horsepower Mercedes driven by M. Jochem, the distance being covered in 2:52 1-5. The best previous record was 2:52 3-5, made by Baron de Caters, also in a Mercedes. The 7-horsepower Oldsmobile again won in its class, covering the five kilometers from a standing start in 6:34.

Touring events occupied the third day, a distance of 150 miles having to be covered by vehicles divided into three classes according to their prices and weights.

Speed tests were again held on the fourth day. The only sensational performance was that of Giuppone, who, with his 110-pound Peugeot motorcycle, covered a mile with standing start in 55 3-5 seconds, and a kilometer, with flying start, in 27 1-5 seconds, giving a speed of more than 82 miles an hour and breaking the best previous record by one second. No records were broken in the other classes. De La Touloubre's Darracq made the best mile from standing start in the light racing class, his time being :54 3-5. He made the flying-start kilometer in :26 2-5. Among the heavy racers the Gordon Bennett Darracq driven by Wagner was the fastest, covering the mile in :54 3-5 and the kilometer in :26 2-5. Among the touring cars the 7-horsepower Oldsmobile covered the mile in 2:38 3-5.

Throughout the meeting the best of weather prevailed. The two closing days were devoted to receptions for club members, driving competitions, parades and an excursion from Ostend to Antwerp.

That new automobile of W. L. Ellwood has arrived. It is a high stepper and has superb knee action, as certainly it would have to have if Will Ellwood had anything to do with it.—*DeKalb (Ill.) Review.*

Mount Cenis and Doullem Hill Climbing Tests.

Special Correspondence.

PARIS, July 17.—The classical Mount Cenis hill-climbing test run over a twenty-two-kilometer course with an average ascent of 8 per cent. was this year a contest between France and Italy. The champions entered by the former country were the two De Dietrich cars piloted by Gabriel and Duray, a Darracq steered by Hemery and a Rochet-Schneider by Juvanon. Italy had entered its Gordon Bennett cars driven by the same team—Cagno, Nazzari and Lancia—and had in addition the new 100-horsepower Italia driven by Fabry. The two De Dietrich cars, however, did not start, the Italia had an accident the day before the contest, which put it *hors du combat,* and the event was thus narrowed down to a struggle between the two French and the three Italian cars.

At the start Lancia, of the Fiat team, lost sixteen minutes and abandoned the climb at the seventh mile. The result of the race, nevertheless, was a victory for the Fiat firm, Nazzari coming in first in 19:18 5-10, an average speed of 42.4 miles an hour, and his companion, Cagno, second, in 19:26 3-10. Hemery's 80-horsepower Darracq was third, in 20:26 3-10, and fourth position was taken by the Rochet-Schneider, driven by Vitalis, in 23:51 4-5. Lancia's last year's record of 22:24 2-5 was thus beaten by a wide margin.

The hill was also tackled by light racers, motorcycles and touring cars, and in every class the previous record was beaten.

As a sporting and society event the Mount Cenis hill-climb occupies a high position in Italy, and this year's race was attended by the Queen-Mother, the Duke of Genes, representatives of the Italian government and numerous well-known French and Italian sportsmen.

At the same time that the Mount Cenis hill-climb was in progress in the north of

(Continued on Page 143.)

Grout Gasoline Touring Car.

AFTER a series of experiments said to have extended over a period of three years the Grout Brothers Automobile Company, of Orange, Mass., well known as a manufacturer of steam cars, has brought out a gasoline car of the accepted touring type, having a four-cylinder vertical motor rater at 28-30 horsepower. Those who are familiar with the Grout steam car of the larger type will at once notice the resemblance between it and the new gasoline car; this is due to the fact that the side entrance body is of the same form as that used on the large steam machine. A series of gasoline cars will be placed on the market in a short time, consisting of the 28-30-horsepower car referred to, a 40-horsepower car with a six-cylinder motor and a 60-horsepower car, also with six cylinders. The latter will be a big, roomy vehicle with limousine body. Only the 28-30-horsepower machine is ready for delivery at present; the car is illustrated by the accompanying engraving.

The frame of the 28-30-horsepower gasoline car, like that of the steam touring car, is of steel-flitched oak. Both front and rear axles are of solid, square nickel steel, the front axle being 1 3-8 inches square and the rear axle 1 1-2 inches. The rear axle being solid, the rear wheels are of course driven by double chains. All the road wheels run on ball bearings of large size. The wheels, of the artillery type, are 30 inches in diameter, and are fitted with 4-inch tires. Lemoine steering pivots are used.

A steel sub-frame supports the four-cylinder engine and the transmission gear case on three points. The cylinders are cast individually, and have valve chambers, water jackets and heads cast integral; the cylinders are secured to the aluminum crank case in the usual way, by means of studs. A removable panel in the side of the crank case gives access to the cranks and connecting rods. The bore of the cylinders is 4 1-2 inches and the stroke of the pistons 5 inches. All valves are located on the left-hand side of the motor, and all are mechanically operated by cams on a single camshaft, the gearing for which is enclosed. All the valves are exactly alike, and all are placed in separately removable cages. Crankshaft and connecting rods are made from steel forgings, the latter being of I-section, with bronze bushings in each end; the main bearings of the crankshaft are also of bronze, four in number.

Lubrication of the motor is effected by means of a force feed oiler belt driven from the crankshaft. Of the six feeds, four supply the cylinders and the remaining two the end bearings of the crankshaft. Crankpins, camshaft bearings and the interior bearings of the crankshaft are lubricated by splash.

Cooling is effected by the customary pump forcing water through a honeycomb radiator, the latter being rendered more effective by a belt-driven fan, which draws a current of air through the radiator.

One vibrator coil, carried on the dashboard, is used in connection with a distributor mounted on the top of a vertical spindle. Current for the jump spark is furnished by a storage battery and a set of dry batteries, a switch being provided so that either may be used at will. The spark plugs are inserted over the inlet valves. The carbureter is automatic in its functions, and the throttle is incorporated in it. Engine speed is regulated by the throttle and ignition levers placed in the usual position on the steering wheel.

Power is transmitted from the motor through a leather-faced cone clutch and a universal joint to a three-speed sliding gear. The differential and the bevel driving gears are contained in the rear end of the transmission gear case; the countershaft runs in long, plain bronze bearings, and carries on its extremities the sprockets for the side driving chains. A pedal is provided for releasing the clutch, and ball bearings take the thrust. A single lever operates the three forward speeds and reverse, working over a notched quadrant.

Steering is by a worm and segment gear, the thrust being taken by ball bearings. Brake bands act on drums on the rear hubs, forming the emergency brakes operated by a hand lever; the service brake is a drum and band on the differential, and is operated by a pedal. Wheelbase is 96 inches and tread 56 inches.

WHITE CAR FOR 1906 MODEL F WITH LONG WHEELBASE AND SIDE ENTRANCE.

NEW GROUT 28-30 H. P. GASOLINE TOURING CAR.

New White Car for 1906.

Several changes have been made in the White steam car in designing the 1906 model, and though it is yet early, the White Sewing Machine Company has made public the principal differences that exist between the 1905 car and the 1906 machine, which will he known as Model F. It is announced that the entire output of the 1905 White cars has been disposed of, leaving the shops clear for work on the new model, which has already been subjected to tests with results which,

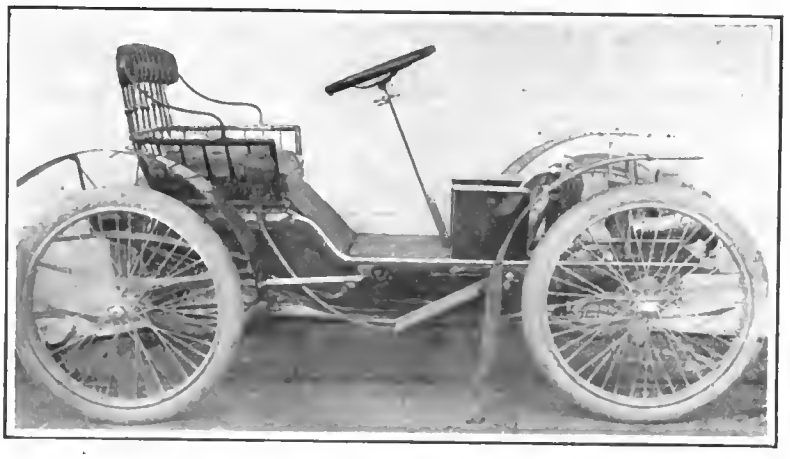
the manufacturers state, were highly satisfactory.

Most noticeable among the changes are the side-door entrances to the tonneau and the lengthened wheelbase. The former wheelbase of 93 inches has been increased to 114 inches, the additional twenty-one inches being utilized in making room for the side doors and producing a more roomy and comfortable body. With a view to reducing the dust nuisance to the minimum, the curves of the rear of the body have been so designed as to deflect the air-currents downward and backward. Under the rear seat is a large storage compartment with a door opening from the rear of the body.

Practically the only change made in the power plant is in the burner. This has been entirely enclosed, the openings for the admission of air having been eliminated. All the air used by the fire is now taken in with the vapor through the induction tube, and thus the burner is made practically "windproof." As the side flues used in former models to carry off the products of combustion are rendered undesirable by the new style of body, the gases after passing upward through the steam generator are deflected and carried downward through an annular flue surrounding the generator. Owing to the large area of the discharge flue, the gases reach the atmosphere in a comparatively cool state, and are dissipated in the air without being in any way objectionable.

Among the detail changes that have been made in the Model F car are the compensating brakes and an inside overflow for the water tank. A continuous steel wire cable is substituted for the usual steel rods in connecting up the brakes, the arrangement being such as to ensure an equal distribution of braking effort on the wheels. The inside overflow permits of ready flushing and prevents the water from running over.

Motor boats are very popular on Lake Lucerne, in Switzerland, and their use is becoming more general every season.



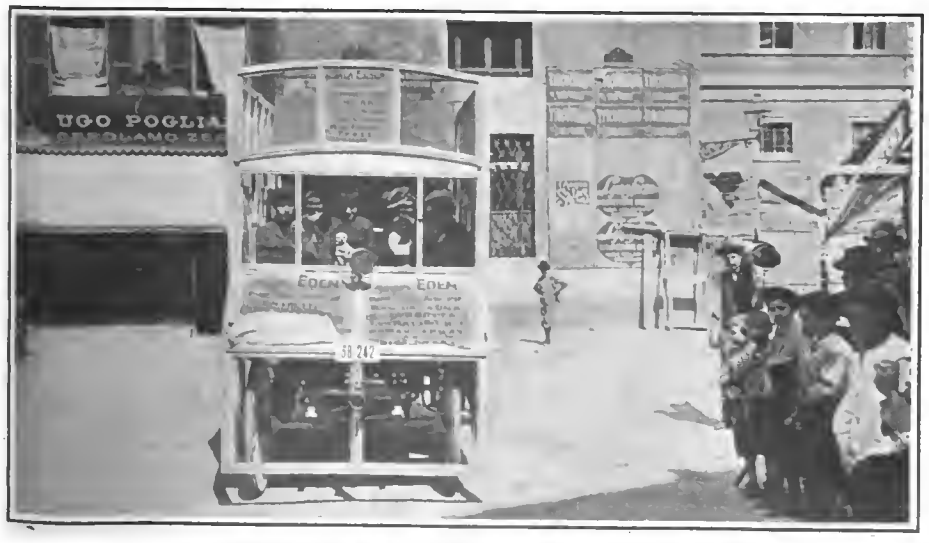
RANDALL "MIDGET," BUILT BY CHARLES V. RANDALL, OF SAN JOSE, CALIF.

Speedy Little Car.

The little machine herewith illustrated is believed by its owner and builder, Charles V. Randall, of San Jose, Cal., to be the smallest real "car" in the country. Its weight, ready for the road, including three and a half gallons of gasoline, is but 365 pounds. The motor, a 2 1-4-horsepower De Dion, propels the little vehicle at a normal speed of eighteen miles an hour, while a maximum speed of twenty-seven miles has been attained under favorable conditions. The frame is of one-inch angle steel trussed with quarter-inch rods, and is suspended on full elliptic springs. The distance from the top of the seat cushion to the ground is but twenty-six inches. Mr. Randall is a firm believer in light vehicles, and has built this little car for his personal use, and not for sale.

New Use for Old Car.

An enterprising theater manager in Milan, Italy, has discovered a novel use for the automobile which has resulted very profitably for him. He made the rather inexpensive purchase of an old Benz car—one of those antiquated machines that seem to be pushed along more by the thumping of the engine than by the rotation of the wheels, but which, nevertheless, keep on doing their work, year after year, without failure. A light wooden framework was built, extending over the entire car and reaching nearly to the ground, the extreme height being nearly nine feet. Panels were fitted to the framework, and on the panels are pasted theater bills and posters, while three large plates of ground glass, one on each side and one in the rear, are used as screens on which cinemateograph pictures or illuminated advertisements are projected. Though this outfit has been in use only a short time, it has attracted much attention and is said to have considerably increased the business of the enterprising theater proprietor.



OLD BENZ CAR TRANSFORMED INTO THEATRICAL ADVERTISING WAGON.

Mt. Cenis and Doullem Hill Climbing Tests.

(*Continued from page 141.*)

Italy, the Doullem hill contest was being carried out in the north of France. The meeting had extended over three days and included a variety of contests, though the one looked upon with most interest was the hill climb of 500 meters on an 8 per cent. grade for the De Caters challenge cup. The cup was gained last year by Hanriot, with a Bayard-Clement, in 19 seconds, and this year's match lay exclusively between the holder of the cup and Wagner, with the 80-horsepower Darracq, which took part in the eliminatory races for the Gordon Bennett cup.

A flying start was given, and the Darracq went up the hill in 15 1-5 seconds, or at an average speed of 73 1-2 miles an hour. Although there were only two competitors, the racing was exceedingly interesting. Hanriot's Bayard-Clement, being only three-fifths second behind the winner. Thus, although he has lost the cup, he has the satisfaction of having exceeded his last year's performance by a wide margin.

One of the evil effects of using too much lubricating oil in the cylinder is the clogging up of the muffler. This, if carried far enough, results in excessive back pressure and consequent loss of power.

Patents

Automobile Brake.

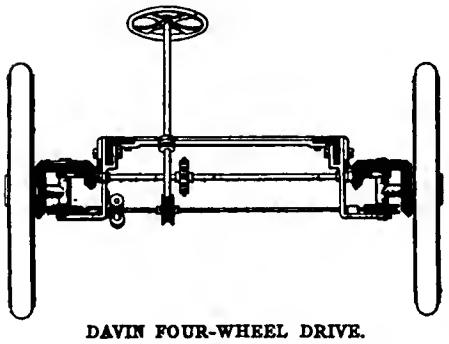
No. 794,382.—J. Unser, of Carthage, N. Y.

A variety of air brake, adapted to be applied either to automobiles or to trailers behind a traction engine, and worked by the driver of the latter.

Four-Wheel Drive.

No. 794,666.—Mr. J. Davin, of St. Louis, Mo.

A four wheel drive with all wheels steerers. The general character of it is clear from the drawing. It is proposed to steer by a double worm reduction as shown, and to connect the two crossworm shafts by a fore and aft shaft with spiral gears at each

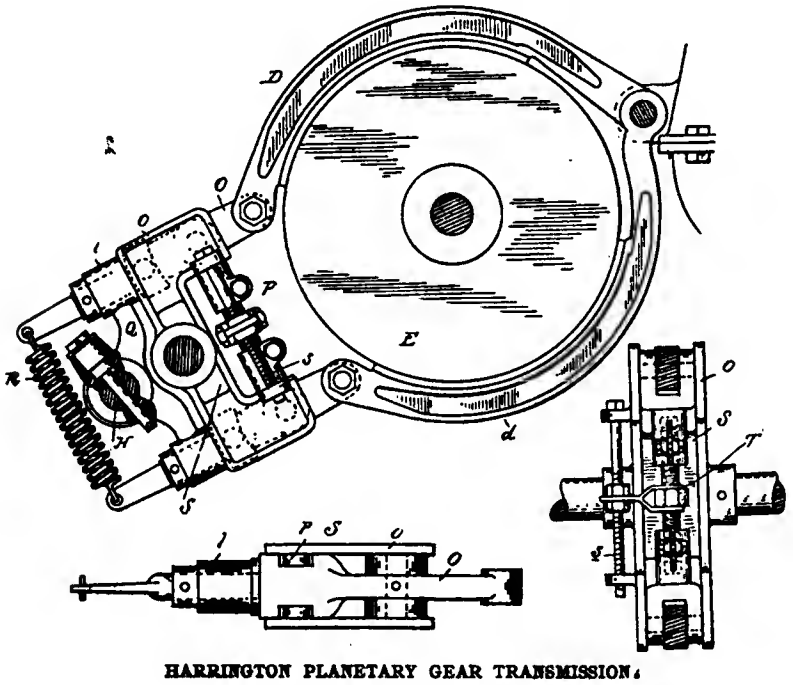


DAVIN FOUR-WHEEL DRIVE.

end. The efficiency of this equipment does not seem to have been considered, and it fails to afford a greater angle of deflection for the inner wheels on a curve, as is required to avoid side slip.

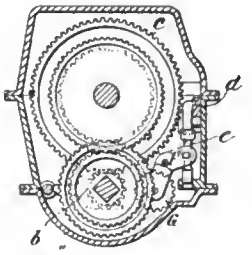
Planetary Gear Mechanism.

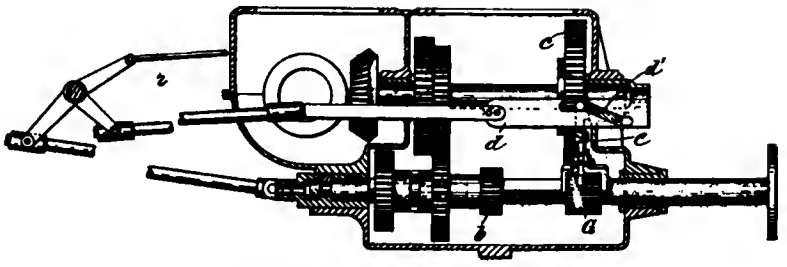
No. 793,929.—N. T. Harrington, of Detroit, Mich.



HARRINGTON PLANETARY GEAR TRANSMISSION.

A pair of brake shoes *D d*, tightened on the slow-speed or reverse drum *E* by the mechanism shown, which is operated by endwise movement of the shaft *H*. The two levers *O O* are fulcrumed at the ends of the link *P*, which is adjustable by a right and left hand screw, and their outer ends are nominally drawn together by the spring *R*. They are spread by the cam





STINZING REVERSING MECHANISM.

pieces *Q*, which are attached to *H* and act against rollers *l*. Thus one position of *H* tightens the brake shoes, and another releases them and may be made, by connections not shown, to engage the high-speed clutch. To prevent *D* from rubbing on *E* when released, the floating support *s* is provided, which itself is carried by an elastic piece *T* attached to the right and left hand screw. The guides *S* prevent lateral movement of *O O* with *H*. They have checks *o*, with guide blocks *p* working in slots in the levers.

Reversing Mechanism.

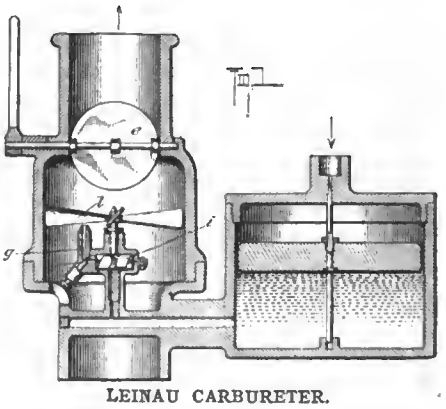
No. 793,855.—F. C. Stinzing, of Union, N. J.

The intermediate pinion *G* is carried on a forked lever *F*, fulcrumed near its centre and actuated by a plunger *e*, which near its head has a pin working in a cam slot *d'* in a slide *d*. This slide is worked by a bell crank connected to the gear shift, in such a manner as to bring *G* into working position when the sliding pinion *b* has got past the low-speed gear *c*. It therefore meshes with *b* and *c* at the tips instead of the ends of the teeth, as is usual.

Carbureter.

No. 791,801.—N. Leinau, of Ashbourne, Pa.

In this carbureter the spray nozzle *g* is located, as shown, where the gasoline jet, or part of it, will impinge on the blades of a fan *l*, which is rotated by the upward air



LEINAU CARBURETER.

current. This is supposed to assist in mixing the gasoline and air. Another feature is the use of a sort of rotary pump *i*, attached to the base of the fan spindle and employed to assist the gasoline in going through the mouth of the nozzle. A throttle valve is indicated by *e*.

Fluid Gauge.

Nos. 794,675 to 794,679.—M. Martin, of Malden, Mass.

This group of five patents relates to a gauge designed to indicate by a needle and dial the level of liquid in a tank when the tank is under internal pressure or for any other reason a stuffing box connecting the needle to the interior float is not desired. The general character of the device covers

a vertical, spirally grooved shaft, a float running on the grooves of the shaft and guided by vertical rods so that it rotates the shaft by moving up or down, a magnet attached to the top of the shaft, a dial over the magnet, and a magnetic needle pivoted over the dial so as to move with the magnet on the shaft. The shaft, etc., may be carried in a housing screwed into the filling hole of the tank in place of the usual plug. Modifications provide for a filling plug at one side of the housing, so that the latter does not need to be taken out to refill the tank, and a simplified construction for use where the tank is not to be under internal pressure.

Storage Battery.

No. 793,117.—F. S. Witherbee of Jersey City, New Jersey.

A storage battery, one feature of which is the form of the yokes connecting the lugs of the positive and negative plates respectively to the terminals in the cover of the cell. These yokes, instead of being as short and direct as possible, have bent arms, which serve partly to facilitate alignment of the plates and partly to steady them. Another feature is a gas vent in the form of an inverted T-shaped slot in a plug in the cover. The plug is surrounded with an air space between, by a threaded bushing, to prevent slopping of the acid.

Gear and Crank Case Design.

No. 793,409.—H. Austin of Birmingham, England.

A construction whereby the crankcase and gearcase are rigidly connected to insure perfect alignment of the shafts. The front end of the gearcase connects to a housing which extends around the flywheel and is cast integrally with the crankcase. A partition, of course, separates the interior of the crankcase proper from the spaces occupied by the flywheel. The structure thus formed is supported at three points, one on each side of the flywheel, and the other at the front end.

Vaporizer.

No. 794,192.—J. W. Seal, of Hammersmith, Eng.

A vaporizer designed more particularly for oil engines. The air is drawn upward and past a spray nozzle partly closed by a needle valve, whose lift is controlled by a centrifugal governor, to vary the amount of oil fed according to the power required. Attached to the valve stem is a flat helix of wire instead of the usual mushroom, on which the oil spray impinges. The air drawing through and past this coil springs it up at the edges, so that substantially the same amount of air gets by at any position of the valve.

Undertaker Ephriam Culp has bought a new automobile and had his first experience at the ball game yesterday. His gasoline gave out.—*Goshen (Ind.) Times.*

Letter Box

Motor Passenger Coaches.

Editor THE AUTOMOBILE:

[242.]—An interurban railroad is likely to be constructed on a stretch of 58 miles of road in this locality, and the question of motive power has been raised, gasoline and electricity both having been mentioned. Will you kindly advise concerning the following questions:

First.—Do you know of any concern engaged in the building of motor cars for such service?

Second.—Have any experiments been made along these lines, and if so, by whom?

Third.—Please give your opinion as to the practicability of the gasoline motor for cars in interurban service.

P. H. W.

Texas.

We take pleasure in replying to your queries, but before doing so would call attention to the distinction between the two types of cars that have been used for this purpose.

In one type (the simpler) the gasoline motor is used to drive the car direct by means of suitable gearing. In the other type, the gasoline motor is used as a prime mover to drive a dynamo which furnishes current to motors connected with axles in very much the same way as they are on the ordinary trolley car. It would, of course, be entirely without the compass of this reply to enter into a discussion of the relative merits of the two types. With the facts in mind, we reply to your queries as follows:

(1) We know of two coaches of the type you mention in successful operation, both propelled direct by internal combustion motors. One of these is in operation on the Union Pacific Railroad; just where at the present time we do not know, but it was originally designed to be operated in the vicinity of Portland, Oregon. The other vehicle was built for the Great Northern Railway, of England, and is in use on some one of its minor branches. We believe that enquiries addressed to the official authorities of those roads, stating your anxiety to learn something about the practicability of the system, would undoubtedly bring you some desired information.

(2) Part of your second question is answered in the foregoing. We believe that two cars of the type in which a combined system of gasoline and electric drive is employed are now under construction by the General Electric Company of Schenectady, N. Y., and we suggest that you write to this company for information on the subejct.

Now, as to our opinion on the practicability of these cars. We know of no good engineering reason why such cars should not furnish the most satisfactory service, especially where the traffic is comparatively light. No doubt you have been over the question of initial expenditure, and have realized that by the use of such cars the necessity for a large investment in a central power plant, in copper contact wires, in feeder wires and rail bonds is obviated. The whole question, of course, turns on the reliability of such cars, as a road, to make money, must keep its cars running.

The gasoline engine is long past the experimental stage, as witness the recent thousand miles endurance runs in New York, and the questions to be solved relate more particularly to the proper application of the power to the driving of the car. This is undoubtedly in a somewhat experimental stage as yet, there being no means of knowing just what the right construction is without experience in the operation of such cars, which is limited.

We are firm believers in the possibilities of such service, but would not undertake to express an opinion on the economic value of such an equipment in the light of the very limited amount of data available on the subject.

It will give us much pleasure to forward to our correspondent any information on the subject sent to us by manufacturers for this purpose.

Electric Ignition Wiring.

Editor THE AUTOMOBILE:

[243.]—Can you give a diagram showing the correct method of electric ignition wiring for a gasoline automobile of any kind?

S. M. C.

Marietta, O.

While we would be glad to answer your question if we could, it would be like an electrician attempting to answer the question, "How should a house be wired?" If you will give the type of motor, the system of ignition—jump spark or make and break—the source of current, the kind of coils and so on, a wiring diagram to suit the conditions will be given. There are so many variations of each of the ignition systems used that any attempt to cover the whole ground in this department is out of the question.

If you ride in an automobile and think you are going too fast, you had best watch out for the cop on a bicycle, who has a pedometer attached to his wheel. Yesterday afternoon Chief Jennings placed two pedometers on the wheels of the two bicycle officers on Peachtree street. The pedometers will register exactly how fast a bicycle is moving, and the scheme is to have a bicycle officer on whose wheel there is a pedometer to follow an automobile which is supposed to be running at a rate of speed faster than is allowed by law. If an automobile is running too fast and a policeman on a wheel with a pedometer runs after the auto he can tell exactly how fast the auto is moving.—*Atlanta (Ga.) Constitution.*

THE AUTOMOBILE

VOL. XIII. No. 5

Published every Thursday by

THE CLASS JOURNAL CO.,

Flatiron Building, Madison Square,

NEW YORK CITY.

Cable Address - - - - Autoland, New York
Long Distance Telephone - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2.00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 5 o'clock p. m. Monday for the issue of Thursday following.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies Printed in 1904, - - -	**639,300**
" " **This Issue, - -**	**14,000**
" " **Since Jan. 1, -**	**433,500**

The 1905 Vanderbilt Race Course. With the Gordon Bennett race for 1905 disposed of, the International Vanderbilt cup race, to be held on Long Island in October, now focuses attention. The course which has been selected by the race committee is described in detail in this issue, after a careful inspection of the roads. In its remoteness from towns, or even villages of any considerable size, it has an advantage over the course of last year, and it is certainly more picturesque, though this is a feature that will not be appreciated by contestants going at the rate of a mile a minute or better. The road surface is good, and the turns, with slight improvements, will be quite easy to skilled drivers. Nevertheless, considering the number of cars which will start, the course is open to the serious objection of being too short, and for much of its length it is quite too narrow for safe passing at high speed. This view is not merely local, but is held abroad, especially in France, where the impression seems to prevail that "the course is too small and the race too large." In fact, some of the most famous French drivers have declared that they would not care to risk it.

It seems probable that four nations will compete, viz.: America, France, Germany and Italy. Should each nation enter its full complement of five cars, there would be twenty starters over a course less than thirty miles in circuit. Alowing a three-minute interval between cars, which is none too much, the cars first started would have completed the circuit long before the last cars were sent away. There can be no question that a serious congestion of the course would result from a full entry list, and this would be aggravated by the narrowness of much of the roads, which would make passing impossible. Even if no accident should occur, the result would be to put many of the drivers out of temper and tend toward unpleasantness. Again, on the Lakeville road, the course is so winding and narrow that in many places a driver can see but a very short distance ahead, and should a car break down it would be practically impossible to get it clear of the road before a following car would reach it.

No doubt the committee has given serious attention to these difficulties. It would be well to apply a remedy in season so that those who should compete may not be deterred by anticipated dangers. Two solutions immediately present themselves: either to establish timing controls, as in the Gordon Bennett, a suggestion made by Mr. CLARENCE GRAY DINSMORE in an interview recently published in these pages, or by adding to the new course the old one in its entirety, making an "8" shaped circuit, such as was adopted in the Gordon Bennett race run in Ireland. Permission to use this additional stretch of road could doubtless be easily obtained from the authorities.

Anything that makes for the safety of the race is certainly worth time and attention, and an early official announcement of the committee on this subject would be beneficial.

✷

Mr. Edison Again Breaks Out. The world in general, and automobilists in particular, received with interest THOMAS A. EDISON'S announcement that he has at last "perfected" the storage battery, and the seemingly necessary comment that "the automobile industry will be revolutionized." While Mr. EDISON'S recognized prominence as a developer of inventions makes any statement proceeding from or attributed to him of much weight, it must be borne in mind that a single test, or even a single series of tests, is insufficient to adequately determine the value of a storage battery. It will doubtless be remembered that tests of the most exhaustive character were said to have been made with the Edison storage battery that appeared some years ago and filled the daily papers with stories of the surprising revolutions the new battery was about to inaugurate in the building of automobiles. Yet the manufacturers of lead-plate batteries are still making a living, and the automobile for $100 is not yet in the salesroom.

Even if the statements with which Mr. EDISON is credited are correct, the new battery is not entirely "perfect," for it is slightly larger, for a given output, than a lead-plate battery, though weighing but half as much. If the weight is as low as it is stated to be, and if the cost of making it is as low as Mr. EDISON is said to expect, a great advance will have been made in this branch of the industry, even if the battery proves no more durable than the ordinary type. The new battery is said to be very inexpensive, the principal materials being iron and nickel oxides and potash; and the same claim is made for it that was made for the first "perfected" Edison battery—a very high discharge and charge rate without damage.

A fact that strengthens the hope that the great things claimed for the latest battery are not visions of reporters who are ready to believe Mr. EDISON to be infallible is that the "Wizard of Menlo Park" possesses an extraordinary tenacity of purpose and has for a long time been searching nature for a material more suitable for use in storage battery construction than lead. He has followed this course of indefatigable research and experiment in the development of other appliances, notably in the case of the filaments used for the incandescent electric lamp; but it should not be forgotten that the incandescent lamp is amongst the most inefficient power-using devices in daily use. Even if Mr. EDISON is successful, however, and produces a storage battery that is as nearly perfect as a storage battery can be, it does not by any means follow that the automobile industry, or any other industry, will be "revolutionized," for the storage battery has too many inherent peculiarities to ever become a serious competitor of other sources of energy in the fields they now occupy for the propulsion of automobiles.

✷

Cars New and Second-hand. When the automobile reached that stage in its development where its popularity was assured and its utility a demonstrated fact, there immediately sprang up a demand for a cheap car—a car for the "poor" man. The demand increased as the popularity and practicability of the automobile increased, and there are to-day thousands who are waiting until someone produces a serviceable automobile that can be sold at a price approximating that of a good horse and buggy, or even of a one-horse family rig. Notwithstanding the demand and the ready market, no car has yet been brought out that can compete with the horse-drawn outfit in point of prime cost; it is useless to say that the price even of a little runabout is a great deal of money to the average wage-earner. The necessity for using high-grade material, the expensive labor employed, the costly plant that must be installed, and, last but not least, the fact that it is still an easy matter to sell a good car at a good price, have stood in the way of the production of the car "for the masses," as the term is commonly used.

There is, however, a solution of the problem that is in many cases very satisfactory; namely, the second-hand car. It has frequently been proved that a well-built

machine, given good care and the occasional renewal of worn parts, will run and give satisfaction for a long time—long enough to become very much out of fashion, so far as appearance is concerned. Following the rapid increase in the total number of cars in use, there is a proportionate increase in the number of second-hand cars on the market, and it is now a comparatively easy matter to find a second-hand car of almost any type at a price very much below its original cost, and in many cases at figures that are really absurdly low.

A machine that has seen a good deal of service, and especially one that is a little out of date with regard to appearance, will rarely bring more than half its original cost, and not infrequently a deal can be made at one-third of the new value. If the engine, transmission and other main parts have been properly cared for there is no reason why such a car, after being overhauled and put in good order, and perhaps fitted with a new bearing here, a pinion there or a bolt or two somewhere else, should not continue to give satisfactory service for a long time. Where the owner is of a mechanical turn of mind he can keep a small car on the road with a surprisingly small repair bill, for keeping a car in good order is a comparatively simple matter if the operator has a thorough knowledge of every detail of the machine—that is, barring serious accidental damage, which can almost always be avoided by careful and considerate driving.

In purchasing a second-hand car it is, of course, essential that the purchaser should obtain an accurate knowledge of the real condition of the vital parts of the machine, and this can only be done with the assistance of someone possessing the requisite knowledge and experience. There are many second-hand cars that, though capable of running, have been so abused and neglected that their machinery is practically destroyed; these would naturally be expensive at any price. But with the price of a good horse and buggy in his pocket and the advice of an experienced automobilist available, the man with a shallow purse can secure a good, serviceable, small car at almost any time, and with careful driving and a reasonable amount of attention to the condition of the machine, can keep it running without undue expense.

If he can afford it he will be much wiser to buy a new car with up-to-date improvements and with the manufacturer's guarantee back of it; but if it is a case of a second-hand car or no car at all, his money will be well invested in the return he will get in health and happiness in the rational use of an automobile.

But that automobile feat in going up and down the court house steps does not break the record. Fairly good success has been made by the auto in climbing trees and telegraph poles.—*Los Angeles (Cal.) Herald.*

MISSOURI'S LICENSE LAW HELD VALID.

Court of Appeals Holds that Act Requires License in Every County Where Car Is Used and Affirms $100 Fine of Lower Court Against R. W. Cobb, of Hannibal.

Missouri's notorious automobile law, which requires an automobilist to take out a license in each county in which he operates his car, was declared valid some time ago by the Court of Appeals at St. Louis, and a fine of $100 assessed against R. W. Cobb, of Hannibal, by a lower court affirmed.

Mr. Cobb was arrested in New London on April 3, charged with driving an automobile through the streets of that place without having secured a license to operate his car in Ralls county. The case was taken before the grand jury of Ralls county and an indictment returned. At the trial in the Circuit Court Cobb was found guilty and fined $100 by Judge David H. Ely. His attorneys argued that the law requiring a license from each county through which an automobilist traveled was unconstitutional and that Cobb had not violated the law.

After an unavailing motion for a new trial and arrest of judgment, the case was appealed, as a test case, to the St. Louis Court of Appeals. Judge Bland sustained the verdict, and his opinion was concurred in by Justices Goode and Nortoni.

In his decision Judge Bland dismisses the effort of defendant to raise the question of constitutionality by holding that "neither the article nor section of the constitution it is thought the act violates is anywhere pointed out or referred to in defendant's motions or brief." He then quotes in full the section of the law requiring licenses, and sustains the lower court in overruling a motion to quash the proceedings because of a defective indictment. Proceeding, he says in conclusion:

"The main contention of defendant is that the trial court misconstrued Section 4, by refusing to hold (if we correctly understand the briefs of counsel) that the license granted defendant by the Clerk of the Marion County Circuit Court authorized defendant to run his automobile over the public roads of any and all counties in the state. The section does not expressly provide that an owner of an automobile must take out a license in each and every county over whose roads he may desire to run his machine. If an owner desires to run his automobile over the streets of a city, he must procure a license from the license commissioner of such city; and the section further provides, in effect, that, if he would extend his excursion beyond the limits of the city, and run over public county roads, he must procure a license from the clerk of the county court before he may lawfully extend his tour into the county: and if he would make a long run across the country through several counties we think the section clearly contemplates that he must procure a license from the county clerk of each and every county over whose public roads he may desire to run before he can lawfully run his automobile on them.

"A license has only a local application. It affords no protection beyond the boundaries of the jurisdiction of the officer who issues it. The jurisdiction of the clerk of the Marion county court to issue licenses is confined by law to occupations, etc., carried on within the boundaries of Marion county, and can have no force or effect or afford any protection to one carrying on an occupation or running an automobile in Ralls county. A license, to be effectual throughout the state, would be one issued by a state officer expressly authorized thereto by an act of the general assembly, or by a county officer under some broad act giving such license force and effect throughout the boundaries of the state. No such provision is found in the act in respect to automobiles, and we are of the opinion that an automobile owner is required to take out a license in each and every county over whose roads he desires to run his automobile, and that the learned trial judge correctly construed Section 4. The judgment is affirmed. All concur."

Writing under date of June 19 to THE AUTOMOBILE, Mr. Cobb says:

"I had a license for my home county and supposed it covered me touring in any part of the state. The circuit court fined me $100, which is the lowest fine under the Mossback law, and which is entirely too much for such an offense.

"I fought the case without assistance from any of the automobile clubs, which seemed to take no interest whatever. It seems the automobile clubs of the state do not amount to much, or they would not allow such an objectionable statute to remain. Such a law is a menace to all tourists through and in the state, who can be jerked up and fined from $100 to $500 for an offense of which they are ignorant, as there is no way to tell when you pass from one county into another.

"Besides, there is the annoyance of having to have so many different numbers attached to your car. What would a car look like with 115 different numbers on it, that being the number of counties in the state? At $2.50 for each license, they would amount to the neat sum of $287.50, which the automobilist must pay if he wants to tour all through his own state.

"I, for one, find it much cheaper and pleasanter to tour the adjoining states, which are not so prejudiced and have no such prohibitive laws."

PITTSBURG LICENSE LAW.

Declared Valid by Quarter Sessions Court in Case of Club Member.

Special Correspondence.

PITTSBURG, July 29.—An important automobile decision was announced July 26 by Judge Robert S. Frazer in Quarter Sessions Court, sustaining the city ordinance which places a license tax on automobiles.

The legality of the ordinance was disputed by the Automobile Club of Pittsburg through its attorney, James Francis Burke, who claimed that both a state and city license could not be assessed. The appeal was taken in the case of Dr. John A. Hawkins, who was fined by a police magistrate for not taking out a city license.

Judge Frazer in his decision discusses the matter thoroughly, and says that the Pennsylvania act of 1903, under which a license tax is assessed on automobiles, is one with which the city has nothing to do, and that the city has the right to assess its own license tax and to make the other restrictions as to speed and equipment which are embodied in it. The automobilists contended that as they were already assessed by the act of 1903 they could not be assessed under a city ordinance, but Judge Frazer holds they must pay both.

The city authorities anticipate no trouble in collecting the money. A few days' grace will be allowed, and then all will be arrested if they do not pay up. There are about 1,000 machines in the city. The tax to be paid on a single seated car is $6, and on a double seated automobile, $10 a year.

A. L. A. M. MEETING.

Members Discuss Relations with Agents and Organize Patent Branch.

Special Correspondence.

BUFFALO, July 31.—The regular monthly meeting of the Association of Licensed Automobile Manufacturers was held at Niagara Falls last Thursday and Friday, July 27 and 28. The next meeting of the association will be held in New York City on August 25.

George H. Day, of New York City, general manager of the association, presided at the Niagara Falls meeting, and others who served as officers were A. S. Marvin, traffic manager; H. F. Cuntz, patent attorney, and C. A. Wardle. Among the business transacted was an appropriation made to the mechanical department of the experimental branch to ascertain the general principles underlying automobile construction, and the appointment of a committee to make a study of the agency situation and to establish closer co-operation between the manufacturers and agents.

In an interview Mr. Day said: "It is not true, as has been rumored, that we met here to arrange for a fight against the dealers. We realize that the co-operation of the dealers is a very important element to our success, and we are here to see that we get along with them amicably in every respect. While in Niagara Falls we have organized a patent company, or branch of the association, with a substantial capital, to handle all questions of patents which may affect our trade. The company will see that our rights are not infringed upon and will defend us against charges of infringement.

"We have also arranged a thorough study of the agency situation, so as to establish the closest relations possible between the manufacturer and the agents. The business is now enjoying a steady, substantial growth, and it will continue to grow under our mutual co-operation."

Twenty-nine members of the association were present at last week's meeting.

CO-OPERATIVE COMPANY.

Formed by Muskegon Club Members—Parts and Supplies at Fair Prices.

Special Correspondence.

MUSKEGON, Mich., July 29.—Local autoists and motorcyclists believe they have solved the problem of obtaining supplies and extra parts at reasonable prices by the organization of a co-operative company to deal in the various articles so often needed by the machine owners, and although the plan has been in operation but a short time, it has proved most successful.

The members of the Muskegon Automobile and Motorcycle Club have, as in the smaller cities of the country, had to pay exorbitant prices for everything, and conditions finally becoming unbearable, a meeting was held to discuss ways and means out of the difficulty. After thoroughly considering the matter, the Muskegon Supply Company was incorporated with a capital stock of $5,000, divided into 1,000 shares of a par value of $5.00 each. The company is entirely separate from and conducted independently of the club, but the stock is held by the club members. A store was rented, a stock purchased, and the business placed in charge of an expert repair man.

The company is run on business lines, a fair price being charged for repair work and supplies, and already a profit is being made, which means that the proposition will actually pay dividends to the stockholders in addition to supplying them at less cost than the articles can be purchased from the independent dealer.

In selling no effort is made to discriminate between a member and a non-member of the club, and both enjoy like privileges.

RACING AT BUFFALO.

List of Events for Two-Day Meeting August 18-19.

Special Correspondence.

BUFFALO, July 29.—An excellent program of events has been prepared by the Automobile Racing Association, under whose auspices the race meet will take place on the Kenilworth track Friday and Saturday, August 18 and 19 next. Following is the list of events:

FRIDAY, AUGUST 18.

Two-mile motorcycle race.
Five-mile open, cars under 1,432 pounds.
Five miles, free-for-all; first heat, $500 trophy (cash or plate).
Five-mile open, stock touring cars.
Second heat, $500 trophy (cash or plate).
Ten-mile open.

SATURDAY, AUGUST 19.

Five miles, Buffalo Owners' Handicap.
Five-mile open, cars under 1,432 pounds.
Three-mile novelty race.
Five-mile National Circuit Championship, free-for-all; first prize, $150 (cash or plate).
Five miles for stock touring cars with driver and three passengers.
Ten-mile final, $500 trophy (cash or plate).
Diamond Cup Race, five miles, free-for-all.

Entry blanks may be had by applying to Manager D. H. Lewis, 760 Main street, Buffalo, N. Y.

WORCESTER ORPHANS' DAY.

Many Little Ones Enjoy Hospitality of Local Auto Club.

Special Correspondence.

WORCESTER, Mass., July 31.—The long-deferred outing of the orphans of Worcester by the members of the Worcester Automobile Club was given Saturday afternoon in a downpour of rain which considerably dampened the spirits of the happy little waifs.

The sun shone brightly all morning, and at 2 o'clock in the afternoon the cars began to assemble in City Hall plaza, but before a part of the contingent, which was at St. Anne's Orphanage, could get back and get in line, rain began to come down in large drops and continued uninterruptedly for about an hour and a half. There was a break then and it was decided to make the run into the country.

There were twenty-six cars in line, and these comfortably cared for 138 children. The procession was headed by M. Percival Whittal, chairman of the runs and tours committee, and members of the press, in his Pierce Arrow. The cars had only traveled about three miles out of the city when it began to rain heavily once more. They were then turned about and a record run made to "The White City," an amusement resort in Shrewsbury, on the shores of lake Quinsigamond, where the orphans were hustled in out of the rain. Between the occasional let-ups they visited most of the attractions in the park and had a royal time which was only marred by the shortening of the trip on account of the rain.

TO POST ROAD SIGNS.

Worcester Club Directs Attention of Selectmen to Law's Requirements.

Special Correspondence.

WORCESTER, MASS., July 31.—There were whispers in the automobile club's quarters in the Bay State House during the Glidden tourists' trouble that in some way the local club would retaliate because of the treatment accorded the automobilists by country constables hereabouts in general and Chief Quinn, of Leicester, in particular. The expected has happened.

Letters were yesterday sent to the boards of selectmen of the neighboring towns calling attention to the fact that in many instances the Massachusetts law regarding sign posts was being disregarded and that for every missing sign post a fine of $5 could be imposed. In this particular, Leicester is notoriously slack.

The law requires that a guide post be erected at every crossroads and fork, and in but few instances in Worcester county are such guide posts to be seen.

Unless the selectmen take immediate action in this matter, it is probable that the matter will be carried into the courts, as the legal department of the club appears to have at last come out of the oft-referred to "deep sleep" and, if appearances are to be taken for granted, means business.

ANNUAL CARNIVAL AT LONG BRANCH.

Long Branch, N. J., will hold its second annual automobile carnival during the week of August 11-19, the programme of events including an automobile show in the West End Casino, floral parades, non-stop contests and a 24-hour contest. A non-stop night and day contest will be started at five minutes after midnight on Monday, August 14, and will finish, if any of the cars entered survive, just before midnight on Saturday, August 19. In connection with this contest a tire test will be made, the prize for which will be a silver cup, offered by Frank Burrells, of the New York Press Club. The New Jersey Coast Automobile Association will have charge of the carnival, with "Senator" W. J. Morgan as secretary and director.

CHRISTIE TRIES FOR RECORD.

The Cape May Beach race meet, which was postponed from Saturday, July 22, to the following Saturday owing to rain, was again interfered with by the elements, and the condition of the beach was such that Walter Christie was unable to attain the speed anticipated with his double-motor blue racer. On Sunday, July 30, he made an attack on the flying kilometer, officially timed by S. M. Butler, of the A. C. A., but was unable to do better than 25 seconds flat, two seconds more than the record made by McDonald in the Napier at Ormond last winter.

ST. LOUIS COMPANY MOVES.

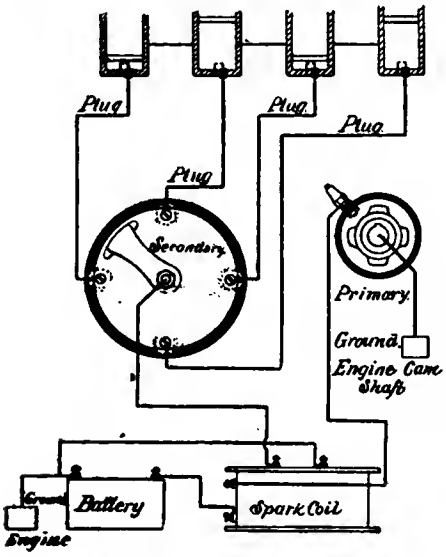
Special Correspondence.

ST. LOUIS, July 29.—The St. Louis Motor Carriage Company announces the completion of arrangements whereby it has secured a factory at Peoria, Ill., and will at once remove to its new location. The new building is 350 by 75 feet, and three stories in height, with ten acres of land adjoining. The new factory will be started at once, and by the first of the year the company expects to have more than three hundred men employed.

INFORMATION FOR BUYERS.

LEAVITT DISTRIBUTOR.—A combined secondary distributor and primary contact maker, the invention of B. F. Leavitt, has just been brought out by the Uncas Specialty Co., 37 Shipping street, Norwich, Conn. The manufacturers have installed special machinery to facilitate the production of the timers in quantities. The general appearance of the instrument, with the cover removed, is shown in the halftone engraving, while the line drawing shows diagrammatically the way in which the connections are made, the primary and secondary contact makers being shown as separated for the sake of clearness, though they are combined in the one instrument.

GENERAL VIEW OF LEAVITT TIMER.



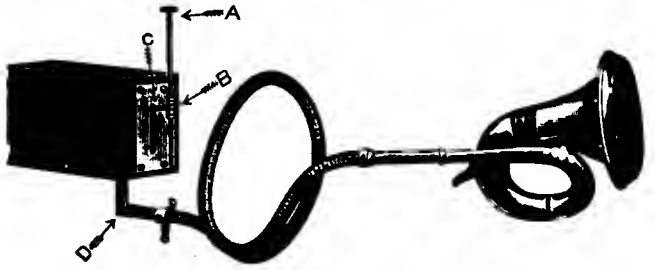
WIRING OF LEAVITT DISTRIBUTER.

The primary contacts are made by the touching of projections on a flange on the shaft (seen in the recess at the back of the timer) against a steel ball as they revolve, there being one of these projections for every cylinder to be fired. The ball is backed by a light spring which keeps it up to its work and automatically takes up wear. The diagram shows clearly how the wiring is done. The secondary circuit is closed by an arm which as it rotates makes contact with brass contact pieces connected with the binding posts for the plug wires. When the cover is in place a steel ball makes contact between the revolving arm and a binding post on the cover, one of the secondary wires from the spark coil being attached to this post and the other grounded, as shown. The manufacturers state that this timer will run without attention and give entire satisfaction, the points where wear occurs being self-adjusting. The shaft itself runs on adjustable ball bearings. The distributor is 4 1-2 inches in diameter and 4 1-2 inches deep; the case is of solid hard rubber. It is fitted to take a half-inch shaft.

BADGES AND PINS.—All sorts of metallic club buttons, cap pins, race meet and tour badges, medals, cups and trophies are especially designed and carefully made to order by Nestor H. Brewster, Box 175. East Orange, N. J. Among the latest examples of his work in badge making are the official A. A. A. cap pin, showing the three A's grouped inside of two linked automobile tires, and the bronze pin with pendant badge worn by the participants in the Glidden Tour to the White Mountains. The work on Brewster pins and badges has an individuality of its own, and the prices are attractive.

NEW SAMSON TIRES.—Heretofore the well-known Samson leather tire treads have been applied to tires made in the ordinary way and intended originally for use with rubber treads. Recently, however, the Samson works in France has made arrangements for manufacturing complete tires with special reference to their use with leather treads. It is said that the tires so made will possess a number of advantages over the ordinary type. The new leather tread tires will be handled in America by A. E. Gallien, 20 Park Square, Boston, agent for Samson tires and treads. The poor condition of the average American road makes the subject of tires of this type a particularly interesting one.

ACME GAS.—The Acme Gas Co., of Chicago, Ill., has issued a handsomely illustrated and interesting booklet of more than 60 pages, describing the gas plants made by this concern for fuel, light and power purposes. The Acme generator consists of an apparatus for forcing air under pressure through crude distillate of petroleum, the air and oil being combined, it is stated, in the form of a fixed gas very similar in its character to natural gas. An advantage claimed is that the gas contains no sulphur or other impurities that injuriously affect metals, and for this reason is especially adapted for use in furnaces and the like where metals are heated. Special burners are not required, the gas being burned, as a rule, from open pipes. Acme gas plants, the booklet states, are automatic in operation after the oil and air pumps have been started, adjusting themselves to the quantity of gas being consumed. If half the consumption of gas is suddenly cut off, the generator at once cuts down its production proportionately; the cost of operation decreases in proportion to the reduction of product. Acme gas plants are being used for many varieties of furnace work, such as hardening, tempering, annealing, crucible work, galvanizing, brazing, japanning, forging and welding, core ovens—in fact, all kinds of work where a steady, even heat under control is an advantage. The booklet provides some very interesting reading for those who are concerned in such matters.



LAWTON FOOT-OPERATED HORN BLOWER.

HORN BLOWER.—Sounding the horn of an automobile is not what could be called a difficult operation, or one requiring much mental or physical exertion on the part of the operator; but it is frequently necessary to make a noise with that instrument when the car is in close quarters, in a traffic-crowded street or in some sort of a tight place, when both hands are so busy doing other things that one of them can ill be spared even for the instant required to perform the necessary job. In such a case the foot-power horn blower manufactured by the Lawton Manufacturing Co., 150 Myrtle avenue, Fitchburg, Mass., should be most useful. This apparatus consists of a small box containing the blower; a plunger, to the top of which is secured a foot button; and the horn itself and necessary connections. The box is fastened to the sill under the footboard with the plunger rod extending upward; this rod is adjustable for length and will answer for any car. All that is then necessary is to run the flexible tubing to the horn and connect it up. A pressure of the foot produces a loud blast of the horn.

INDEX TO ADVERTISERS

SPECIAL NOTICES

Advertisements inserted under this heading at 20 cents per line; about 7 words make a line. Remittance should accompany copy. Replies forwarded if postage is furnished.

AUTO ENGINE with transmission attached. 4 h. p., $55; fine order. L. J. Monahan, Oshkosh, Wis. Aug 3-10

A TEN-PASSENGER WAGONETTE; sample car; 1905-5 model; steam; price and description on application. Thompson Auto Co., Olneyville sq., Providence. R. I. Aug. 3

AUTOMOBILE OWNERS, Drivers, Repairmen, chauffeurs, and others wanted all over the country; 50,000 machines built this year in United States, affording great opportunities for trained men; 5 cents a day will qualify you for good wages in this growing field. For full particulars, address Dept. A159, The Correspondence School of Automobile Engineering, Akron, Ohio. Aug3

A SPLENDID OPPORTUNITY for hotel and livery. Two 2-seated and two 3-seated brakes and one 15-passenger bus, all electric, will be sold at low prices and easy terms, to close manufacturing business. Standard construction, practically new, and in first-class condition every way, including batteries; run but very little. Send for photos and prices. S. F. Bancroft, 1400 Michigan Ave., Chicago, Ill. t.f.

ARTILLERY WHEELS—We have a collection of a few odd sets of Midgley pressed steel wheels with clincher, perfected Dunlop and single tube rims, which could be used to advantage in building a new machine or in remodeling an old one. This collection is a miscellaneous one, composed of sample sets, exhibition wheels and unsold stock, and not scrap or "seconds." Each and every wheel sold under guarantee. They will improve the appearance of your machine and make your old car look like an up-to-date model. While they last we are offering them at extremely low prices. We have a special offer to make Stanley agents and machine owners. Write for booklet. The Midgley Mfg. Co., Columbus, Ohio. Aug. 17

BUICK CARS—We have two new Buick cars, used a few times for demonstrations only, in first-class order, that we will cut out cheap to immediate buyer; can be seen at our garage, 754-760 Bedford Ave., Brooklyn. The I. S. Remson Mfg. Co. Aug3

DO YOU want to buy, sell or exchange your automobile? We have all makes and models, some of them almost new; write for our partial list of bargains. Manhattan Storage Co., 334-340 West 44th St., New York City. Aug3

FOR SALE—1904 Franklin Tonneau: like new; $1,000. Address Chauncey D. Hakes, Albany, N. Y. Aug. 10

FOR SALE—25-h. p. Santos-Dumont 1904 touring car in perfect condition, run only 500 miles; cost $2,500, will sell for $950. Devlin & Co., 1407 Michigan Blvd., Chicago, Ill. Aug3

THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, AUGUST 10, 1905—CHICAGO No. 6

GLIDDEN TROPHY AWARDED TO PERCY PIERCE.

PERCY P. PIERCE was awarded the Charles J. Glidden touring trophy by the Glidden Tour Commission at a meeting held August 2, in Boston, in the clubhouse of the Massachusetts Automobile Club. Mr. Pierce not only completed the tour with a perfect score, fulfilling all the conditions and having no mechanical trouble, but in addition be received the votes of fifteen of his competitors, which was more than twice as many as were received by any other participant in the July run of 870 miles from New York to Mount Washington and return. Mr. Pierce, who drove his Pierce Great Arrow car practically all of the way himself, was accompanied by his father, George N. Pierce, his mother, and Miss L. J. Moody. He made an ideal tour of the trip, thereby fulfilling in spirit as well as in the letter of the conditions the purpose of the contest.

Four other contestants who also made perfect scores were considered by the members of the commission before making the award.. These were Ezra H. Fitch, White; Ralph Coburn, Maxwell; S. B. Stevens, Darracq, and J. C. Kerrison, Cadillac.

PERCY P. PIERCE AND PARTY STARTING FROM THE PLAZA, NEW YORK CITY, AT THE COMMENCEMENT OF THE GLIDDEN TOUR.

The method of selecting the winner has not been made public, further than the statement that the Commission acted in accordance with the votes of the contestants. No official observers were carried, the contestants as a whole observing the

performance of the competing cars, and at the finish of the tour voting for the three entrants whose cars, in their opinion had made the best records. Besides this expression of opinion on the part of the contestants, the Commission took into consideration the selling price of each car, its seating capacity, number of passengers carried, weight, repairs made en route, operating expenses, hill climbing ability and compliance with the conditions of the tour.

First-class certificates were given to twenty-two contestants who completed the tour and arrived at all night controls before the official closing time, as follows: Percy P. Pierce, Pierce, winner of the Glidden trophy; Ezra H. Fitch, White; Ralph Coburn, Maxwell; S. B. Stevens, Darracq; J. C. Kerrison, Cadillac; Augustus Post, White; George Otis Draper, Packard; E. A. Gilmore, Rambler; W. N. Epping, White; W. C. Temple, Pierce; A. L. Pope, Pope-Toledo; Harold L. Pope, Pope-Tribune; C. E. Walker, Pope-Hartford; Robert Lee Morrell, Locomobile; A. W. Church, Decauville; Walter C. White, White; R. E. Olds, Reo; R. M. Owen, Reo; Carl H. Page, White; E. H. Cutler, Knox; Julius Mehlig, Knox, and B. Briscoe, Maxwell.

Four second-class certificates were awarded to others who completed the tour but failed to make one or more of the controls on time. These were given to C. W. Kelsey, Maxwell; Mrs. Joan N. Cuneo, White; C. J. Edwards, Cadillac, and George H. Tyrrell, White.

Present at the meeting of the cup commission were Charles J. Glidden, donor of the trophy; Elliott C. Lee, president of the American Automobile Association, chairman; A. G. Batchelder, acting for Dave H. Morris, representing the American Automobile Association; George E. McQuesten, representing the Automobile Club of Great Britain and Ireland. William K. Vanderbilt, Jr., representing the automobile clubs of France and Germany, could not attend.

Following the awarding of the trophy and granting of the certificates, the commission voted to highly commend the work done by the Knox and Packard trucks (regarding which some interesting data is published in this issue in connection with "Types of Commercial Vehicles on Sale." Votes of thanks were given to Augustus Post, chairman of the A. A. A. touring committee, and to M. L. Downs and A. B. Tucker, special representatives of the tour commission.

The question of the tour for 1906—trophy conditions, route and the like—were placed in the hands of the touring committee of the A. A. A. No official expression could be had regarding the probable conditions, but it seems to be the opinion that on future tours an official observer should be assigned to each car, and survivors awarded certificates in several grades according to individual performances, instead of being given practically identical certificates regardless of delays and repairs.

Concerning the Recent Transcontinental Race from New York to Portland, Oregon.

By JAMES W. ABBOTT, Formerly Special Agent U. S. Office of Public Roads.

OF that vast stream of infatuated Argonauts which in 1849 poured in ever-swelling tide across prairie, plain, desert and mountain to the new-found gold diggings in California was one Hosea B. Horn. With beneficent purpose to enlighten those who might follow him through the mysteries and hardships of a then uncharted trail, after he had reached the goal of his pilgrimage he published a most intensely interesting and valuable little book, which he entitled "Overland Guide from U. S. Indian Sub-Agency at Council Bluffs on the Missouri River to the City of Sacramento, California." In his preface, dated September 1, 1850, he says: "The distance from place to place is accurately shown, and each camping place particularly pointed out, so that the emigrant may know as well in the morning at what point he must camp as he does in the evening, thus saving many a mile's drive over a bad road in the dark. All the mineral and other poisonous waters near the road are carefully pointed out, and the distances from each to pure water given, so that whoever pays attention to it need not lose their teams, as hundreds did this as well as last season, for the want of such a book as this." And so he gives the route with great particularity, distances from point to point, and total distances from "Council Bluffs Agency Ferry, Wheeling, Clark & Co., proprietors, of the Ferry," to Sacramento, Cal.

There is going on to-day a movement toward the Pacific, involving more people than the gold excitement allured, even when the frenzy was at its height, and destined to be equally as important in epoch-making history. I believe the time to be close at hand when the automobile is to become a factor in this movement, and when information regarding route and actual conditions will be as cordially welcomed as was the very opportune little volume here referred to.

The recent transcontinental race was by no means undertaken merely to exploit the merits and virtues of a simple and inexpensive little car. A more important purpose was to bring vividly to public attention a clearer knowledge about all phases of existing transcontinental highways. In the limited space of such an article as this it is manifestly impracticable to give in minute detail all the information which might be desired, but an effort will be made to cover the subject partly in detail and partly by suggestion of fruitful sources of information.

The goal of the trip was the annual convention of the National Good Roads Association, called to open in the auditorium on the grounds of the Lewis and Clark Centennial Exposition at Portland, Oregon, at 2 P. M., June 21, 1905.

The first question to be decided was route to be taken. There are many gateways between New York and the Pacific, and it was by no means a simple question to say in advance with minute particularity what line should be traversed to bring the winner to his journey's end within the time allowed.

Our latter-day prophet, Hosea, said in his introduction: "Council Bluffs is the natural crossing of the Missouri River, on the route destined by nature for the great thoroughfare to the Pacific. This was the road selected by nature's civil engineers, the buffalo and the elk, for their western travel. The Indians followed them in the same trail; then the traders; next the settlers came." While Hosea, with pardonable license, may have claimed for the buffalo and the elk an initiative in trail blazing which precedes the dawn of history, it is a remarkable fact that the "civil engineers" who came two decades after Hosea with the iron trail adopted the location of their alleged prototypes. The desire for a railroad line to the Pacific carrying the nation's commerce with the Orient, which had been a fascinating dream for nearly fifty years with the American people, was realized at last, and when the dream came true Hosea's prophecy was fulfilled.

It was clear that the proper route to Portland should cross the Missouri River at Council Bluffs, where splendid steel bridges long since displaced the ferry of Wheeling, Clark & Co. which had been such a source of revenue in those primitive days.

Horn's book mentions eleven ferries across the Mississippi, but from the advertisements which the thrifty author publishes it is evident that in his time the principal crossings were at Dubuque, Davenport and Burlington. It also seems evident that these three routes converged at Des Moines, from which place there was one main road to the ferry crossing.

For the automobile trip the Davenport crossing was selected, the route followed being practically that shown on the Mendenhall map through Aurora, Geneseo and Moline, into Rock Island, and crossing through the Government reservation.

The start from New York had been made on May 8, from which date forty-four days would elapse before the opening of the convention. That date for starting was suggested by the writer, assuming that the route to be traversed would be a little in excess of 3,500 miles, and that eighty miles a day should be allowed, so as to safely cover all the contingencies of a trip about which there were so many uncertain factors.

On the eighth, ninth and tenth, climatic conditions were reasonably propitious, and Buffalo was reached far ahead of average schedule time. Then the heavens opened and the floods came down. For more than a thousand miles the roads were just such as history tells us they had in England till long after the reign of Queen Elizabeth. Instead of being discouraged and hopeless over the conditions which this trip developed, let us rather take heart and, seeing how the country roads of England to-day are like the driveways in a park, let us rather have faith in a time to come, when even Iowa shall see the truth as it is and know that comfort and economy in highways are not incompatible.

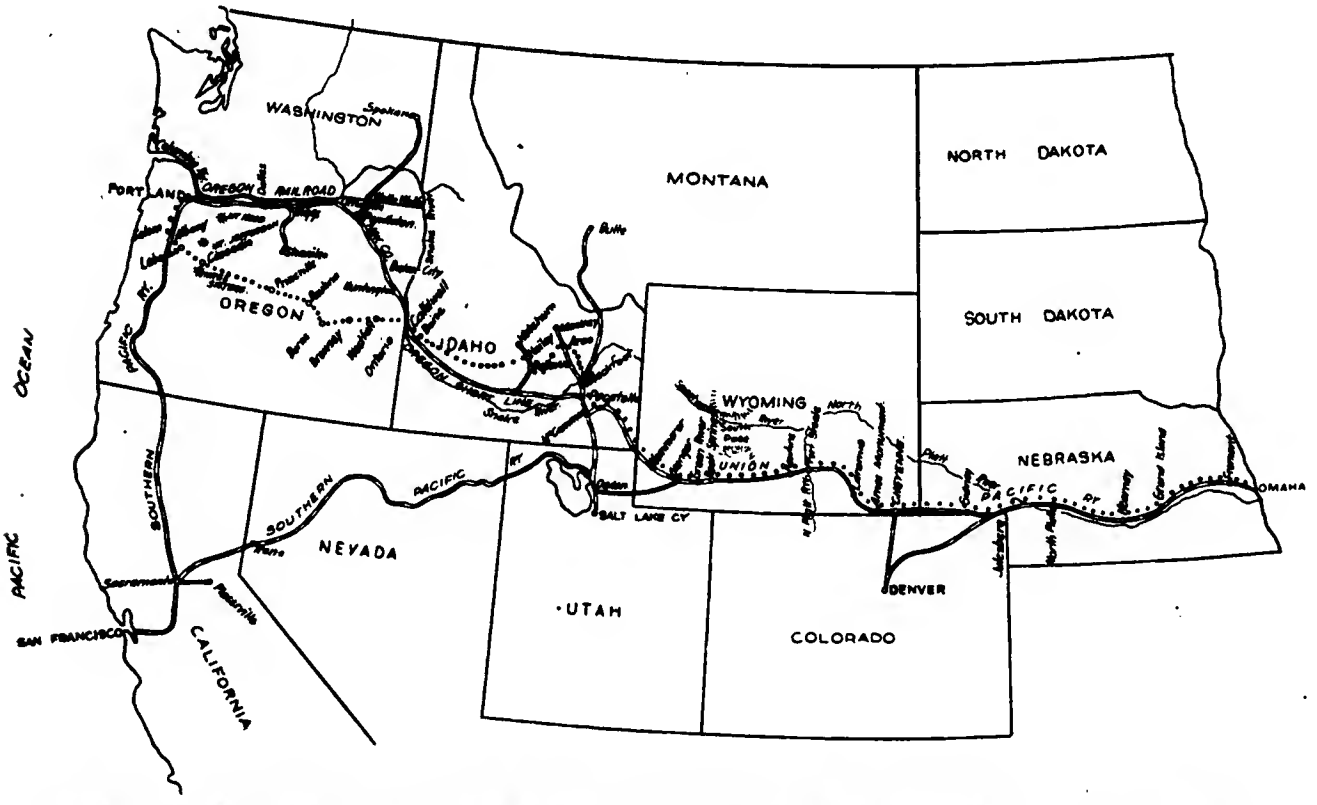
Of course, when anything goes wrong there are plenty to say: "You might have known better. Had you been guided by the light of such intelligence as is happily exemplified in us, you might have escaped this pitfall into which you have blundered so heedlessly." So when the roads in places began to resemble a Hackensack meadow struck by a tidal wave, with bays and inlets, capes and islands never found on the maps, and the cold, pitiless rain was trying to extinguish in the boys any remnant of vitality which had survived the trials by immersion in mud and water, there were lots of cheerful idiots, dry and warm themselves, to console them with the opportune advice: "You ought to have started a month later."

This was a subject to which I gave very careful thought and study throughout the entire trip. My conclusion was that no mistake whatever was made in the time of starting, in view of the date fixed for the meeting of the convention in Portland, but that if the trip were not subject to any time limit, it would be better in the average year to defer starting at least until the middle of May. That would allow another week for an Eastern winter to relax its final hold, and for the roads to become settled, dried, smoothed and inviting.

In setting the time for a transcontinental trip the controlling feature which will be ignored only at imminent peril is that great chain of mountains rising far up in British Columbia and runing for fifteen hundred miles until it shades down and disappears in the desert of Southern California. Through Oregon and on to the North this is known as the Cascade Range, because the mighty Columbia, the father of Northern waters, cuts its way through it to the sea, and while passing Mount Hood, one of its majestic, snow-mantled peaks, the river goes merrily tripping and dancing in its gentle fall over the famous Cascades. In California it is known as the Sierra Nevada, the Spanish for Snowy Range, because the snows of heaven fall and gather on it to greater depths than on any other mountains on the continent of commensurate height and latitude. Woe be to the man who presumes to cross this range in an automobile sooner or later than the time when nature is pleased to invite him. This varies in different years.

A fair average date of opening for the Cascades is about June 1, and for the Sierras about July 1. There is generally a storm about the time of the September Equinox in which snow gathers in great drifts upon the mountain tops along this range. Ordinarily this storm is succeeded by ideal weather. The snow melts away and a sort of Indian summer with autumn tints and golden haze comes to charm the traveler and lull him to unguarded confidence. Sometimes far into October he can cross the passes on either the Cascades or the Sierras with exhilarating delight. And sometimes they close with this equinoctial storm and stay closed, and the traveler who, in presumptuous desperation, should attempt to cross these huge snow banks in an automobile would come to grief, as they do in Arctic regions when winter prematurely shuts them in with ice.

Excepting for this range, any time during the period from the middle of May to November 1 can be selected with warranted assurance for a transcontinental trip in an automobile. We happened to encounter very heavy storms in May. In the latter part of June of this year there were greater floods still in Nebraska and Iowa. The greatest damage done along that route by flood in recent years was two years ago somewhere about the middle of June. This cleared up, and Dr. Jackson slid through after his voyage of discovery without serious interruption from the elements. Just a few weeks later Tom Fetch left Denver for New York in most gleeful mood. He had challenged fate and defied ridicule by proclaiming openly and confidently that he was going to do a thing which many had tried before, but none had accomplished. Great oracles in the automobile world had



SKETCH MAP OF ROUTE FOLLOWED BY THE TRANSCONTINENTALISTS FROM OMAHA, NEBRASKA, TO PORTLAND, OREGON.

gone on record as saying it could not be done in the then state of the art. Tom had done it, and now in triumph he was going to round out his achievement with a record-breaking run to New York. Skies were bright, roads dry, and nature smiled and beckoned him on. He had hardly crossed the border into Nebraska when the floods came as suddenly and as violently as they did on us just this side of Buffalo. He dived into one mud hole after another in that State, and had to swim nearly all the way across the State of Iowa.

So there you are. The record of one year's weather is generally nullified by the next, and in planning trips by automobile about the only reliance we have is the calendar.

But if the boys were all right as to time of starting, there was one serious mistake made. In their zeal to make progress they traveled through storms for which they ought to have laid up. It is an awful hazard to health, vitality and machinery to try to plow through rain and mud as they did at times, and in my judgment the ultimate resultant of progress was loss.

Although diligent inquiries were made in Chicago from all sources of probable information as to the best route to Davenport, and the route followed which we supposed would prove the best, we concluded after the boys had met that horrible experience in the mud east of Moline that we had not been sufficiently informed. The route unquestionably was a good one for dry weather, but we believed that one might have been selected which would have been less seriously affected by the rains. So at Davenport and Des Moines we made a most drastic search for specified information. We sought the road which would afford the least impediment in wet weather—one following the ridges rather than the bottoms, a roadbed of sand rather than of clay, and a route avoiding as much as possible steep, slippery and narrow hill roads. We did not decide on any portion of the line until it had been distinctly confirmed as most desirable by at least two persons who knew all about it from their own experience. The following is a careful description of the line thus selected:

ROUTE FROM DAVENPORT TO DES MOINES.

From Davenport N. W. 6 miles to Fulton road; due W. 11 1-2 miles to Durant; S. W. 1 1-2; S. 1-2 mile; W. 4 miles; N. 1-3 of a mile; W. 1-2 mile to Wilton; W. 1 1-2 miles; S. W. 1-2 mile; S. 3-4 of a mile; W. 1 mile to Moscow; go through business portion of town of Moscow and recross railroad track just east of railroad bridge which crosses Cedar River; W. to bridge across the river; first turn to the left S. W. 1 mile; S. 1-3 of a mile; W. 4 1-2 miles; S. 1-3 of a mile across C., R. I. & P. R. R. track; N. W. 2 miles; W. 2 miles to Liberty; N. W. through town to N. W. corner; W. 3 1-2 miles; N. W. 3 1-2 miles; W. 1 mile; N. W. on Bloomington road 5 miles; W. 1 1-2 miles to Iowa City; 12 miles on Old Man's Creek road; S. W. to Windham; W. 3 1-2 miles to fork of road, take to right-hand one; N. W. to Williamsburg, 12 miles; W. 6 miles; N. 1 mile; then a little N. of W. along the divide 18 miles to Brooklyn; W. 15 miles to Grinnell; keep as near as possible to Rock Island railroad; S. W. 5 miles to Turner; cross C., R. I. & P. R. R.; S. 1 mile; W. 4 miles; S. 6 miles to Kill Duff; W. 1-2 mile; S. 2 miles; W. 1 1-2 miles; N. 1-2 mile to cemetery; W. 4 miles to Reasnor; cross Skunk River; W. 3 miles; N. 1-2 mile to a church; W. 7 miles; N. 1 mile to Prairie City; W. 8 miles to Ivy; W. 9 miles to Des Moines.

DES MOINES TO COUNCIL BLUFFS.

W. on Grand avenue road 12 miles; N. 1-2 mile; cross C., R. I. & P. R. R.; N. 1-2 mile to C., M. & St. P. R. R.; W. along C., M. & St. P. R. R. 1 mile to Waukee; W. along C., M. & St. P. R. R. 7 miles to Adel; W. 9 miles to school; S. 1 mile to Redfield; S. 4 miles; W. 1 mile; S. and W. 2 miles to Dexter; S. 1 mile; W. 5 miles to Stewart; N. 1 mile; W. 5 miles to Menlow; W. 5 miles to cemetery; S. W. 1 mile to Casey; W., winding roads, 7 miles to Adair on summit of divide; W. 1 1-2 miles; S. 1 mile; W. 1 1-2 miles; S. 1 mile to turn just N. of C., R. I. & P. R. R.; W. 1 1-2 miles; S. W. 3 miles to Anita; S. W. along N. side of C., R. I. & P. R. R. 7 miles to Wiota; S. W. 4 miles to Grove City, which is S. of C., R. I. & P. R. R.; N. W. 2 miles to Atlantic; W. 1 mile, and cross C., R. I. & P. R. R. to turn in the road; S., again crossing C., R. I. & P. R. R., 1 1-2 miles; W. 1 mile, again crossing C., R. I. & P. R. R.; S. 1-2 mile; W. 1-2 mile; S. 3 miles, again crossing C., R. I. & P. R. R.; S. W. 1 1-2 miles to Louis; W., a little zigzag, 5 miles; N. 1 mile; W. 11 miles to Oakland; 30 miles to Council Bluffs, following poles of Postal Telegraph Company. Council Bluffs is a very little south of due west of Oakland.

The experience with this route was so favorable that I unhesitatingly commend it to the attention of all who may hereafter cross Iowa in a car until the A. A. A. shall by a carefully discriminating survey give official sanction to one found better.

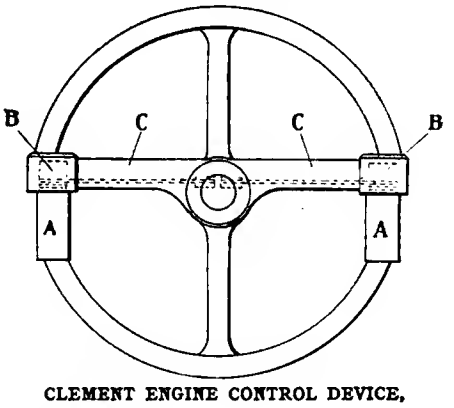
We had an impressive object lesson of the penalty of disregarding it. Probably every reader of this article is familiar with the photographs of that harrowing scene which transpired on the Skunk River bottom. Old Scout and Old Steady appear to be sinking, with hatches open and decks submerged, to unknown depths, while Huss and Megargel view from some footing far beneath the waves the impending fate of their apparently doomed craft. In determining a route for them the perils of that Skunk River bottom had been a source of deep concern. Reasnor had been selected as the strategic point of crossing for definite and well-conceived reasons. A reference to the route as given here will show that in this part it is tortuous and very indirect. Some inspired (motives unknown) liveryman at Grinnell outlined for them a less devious course, which the boys adopted, and near Newton plunged without warning into a watery abyss from which their escape was really miraculous.

(To be continued.)

Clement Engine Control.

A new four-cylinder Clement car, brought out this year by the firm of A. Clement & Co., of France, with which M. Clement was connected before he established the firm of Clement-Bayard, retains many of the features of the original machines, and possesses in addition individual features which make the machine distinctive. Among these is the new spark and throttle controlling device, illustrated herewith.

Instead of the usual levers for this work, placed on either the steering wheel or on the steering column, there are two handles *AA* resembling the grips of a bicycle, placed on the rim of the wheel at diametrically opposite points. Each handle carries a small drum *BB* at its forward end—that is, the end farthest from the operator; and a small



CLEMENT ENGINE CONTROL DEVICE.

steel cable winds on each drum. The little cables pass down through the hollow steering column, connecting at their lower ends with the throttle and the timer. On the top of the steering column, in a bronze cap, two arms *CC* branch out from this cap, reaching to the drums, where they spread out into casings that completely cover the drums. The cables pass through the hollow arms after leaving the post, and thus are entirely enclosed and invisible. Fine ratchets are formed in the ends of the handles, so that they are automatically retained in any desired position.

The advantages claimed by the manufacturers for this device are that the clothing of the operator cannot catch and accidentally alter the adjustment of the control, and that the control of the car when running at speed is more readily accomplished than by the old method.

Some of the automobiles acquire terrific speed by using both gasoline and alcohol for motive power—the alcohol being inside the chauffeur.—*Superior (Wis.) Telegram.*

TYPICAL COMMERCIAL VEHICLES ON SALE.

PROGRESS in the development and improvement of the self-propelled vehicle for business purposes appeals less to the popular interest than similar advance along the line of pleasure vehicle building, but is not the less pronounced and spectacular. One has but to look back mentally to the light, unreliable and uneconomical steam and electric delivery wagons that made their appearance in the late nineties and compare them with the great variety of sizes and styles of electric and gasoline commercial vehicles in use to-day in many of our large cities to grasp the advances that have been made quietly and almost unobserved in the last five years. Since comparisons are odious, however, let it suffice to emphasize the superiority of the vehicles of the present time over their predecessors only by describing briefly the types of cars offered for business purposes by the manufacturers at the present time, stating in addition that they are built more substantially and of better materials than formerly and are made to carry heavier loads with greater economy in operation and repairs.

In commercial work dependability is one of the foremost considerations, for, while a merchant or manufacturer will in some cases be willing to adopt power vehicles for delivery or transfer purposes, even though he may not be convinced that they will be more economical than horse-drawn wagons, the imperative demands of business will not permit of the employment of a system that cannot be relied upon for regular service day in and day out through all seasons of the year.

The difficulties of producing vehicles that would fulfil these requirements through the heavy snowstorms and on the ice-coated streets during the severe Northern winters as well as through the hot summer weather have been enormous, yet the large number of commercial vehicles now in use and their rapidly increasing number indicate clearly enough that success has attended the efforts to overcome them. The question now no longer is, Will the motor wagon do the work? but, At how much less expenditure of money and time will it do the work of my horse-drawn wagons? and, How many days in the year will the machine be laid up for repairs?

It is regretted that we have been unable to obtain sufficient data extending over any considerable period to make it possible to present reliable averages of cost of operation for the different classes and types of self-propelled vehicles, but some recent records that have been furnished will throw light on the subject.

Taking the data furnished to the Packard Motor Car Company by eleven different concerns using the Packard gasoline or explosion engine two-ton truck in Detroit, Chicago, Buffalo and Baltimore, for one day each in May and June of the present year, we find that the average performance was as follows: Mileage, 26.7; net running time, 2 hours 44 minutes; miles per hour, 12.4; average distance in miles between stops, 2 1-2; gasoline consumed, 3.3 gallons; average load carried, 2,691 pounds.

The foregoing represents the average full day's work, although the actual running time does not exceed 2 3-4 hours. The rest of the time was consumed in stoppages to receive and deliver goods. The short distances between stops are significant. In some cases as many as fifty-seven stops have been made in traversing a distance of sixty and a half miles in a total elapsed time of 8 hours 48 minutes. Again, eighty-one calls have been made in a day in traversing 39 5-8 miles in an elapsed time of 8 hours 31 minutes. As gasoline retails for about 20 cents a gallon, it will be seen that the cost per day for fuel averages only 66 cents. About 40 cents a day might be added to this for lubricating oil and grease.

Similar data for six different days in February and March resulted in the following averages: Miles traversed, 28.6; net running time, 3 hours 17 2-3 minutes; miles per hour, 8.6; miles between stops, 2; gasoline used, 2.3 gallons; load, 3,283 pounds; number of stops made, 29.3.

As a demonstration of what a gasoline truck can do on country roads, the trip of the Packard and Knox trucks from New York to Mount Washington and return in company with the Glidden tourists was a valuable demonstration. The former, loaded with 2,500 to 2,700 pounds of baggage, covered from 68 to 140 miles a day, the average being approximately 120 miles. Starting between 1 and 2 o'clock in the mornings, the truck usually reached its destination for the day by or before 6 P.M. This same truck climbed the famous road up to the top of Mount Washington. The figures for the total period of the tour are given on the following page.

The Knox 2,500-pound truck, which is geared to eighteen miles an hour, and carried a load of suitcases weighing 1,200 to 1,500 pounds, started at or soon after 6 o'clock each morning on the touring car schedule, and usually finished its day's run in from seven to eleven hours. Both trucks were fitted with solid tires. These demonstrations show the adaptability of such trucks for long-distance work over ordinary country roads. The following data for the trip of the Knox truck will be of interest:

The total distance covered during the trip, including various side trips and four days' regular baggage wagon service between the Mount Washington Hotel and the railroad station, was 1,001 1-4 miles. The total running time was 68 hours 35 minutes, the average mileage per hour 14 5-8. The total consumption of gasoline was 107 1-4 gallons, at 20 cents a gallon, amounting to $21.45. Four and a half gallons of lubricating oil were used, at 50 cents a gallon, amounting to $2.13. The only replacements made on the vehicle were two chain links and one exhaust valve, amounting to $4. The total operating expense for the eleven days' trip, covering more than 1,000 miles, was $27.58, exclusive of driver's wages and storage and cleaning.

Some useful figures regarding the work done by the light Olds delivery wagons in regular service in Detroit are given by the Auto Express Company of that city. During eleven weeks last summer one of these wagons covered a total mileage of 5,016, averaging 76 miles a day, and making an average of 98 stops per day to deliver packages. During the eleven weeks the operating expenses were as follows: Gasoline, $31.95; lubricating oil, $4.02; repair labor, $13.80; repair parts, $7.06. Total, $56.83. Add to this: Driver, $114.40; jumper boy, $44. Grand total, $215.23. The average cost of operation is given by the Auto Express Company at $19.56 a week, and the cost per mile of operation, including wages, as 4.2 cents. This wagon missed only one trip out of 198. Later in the season the company added two similar vehicles to its equipment, one of which ran 540 miles in nine days and delivered 1,323 packages at a cost of $4.91 for repairs, gasoline and oil. The other covered 867 miles during the same period at a cost of $8.62 for the same items. Such a large number of stops, of course, is a severe test of the clutch mechanism and brakes. The cars were fitted with Swinehart solid tires.

By way of comparison, the company stated that at least eight horses would be required to do the same amount of work steadily. The company's business rapidly increased until in October it was operating eighteen delivery vehicles and handling the delivery business of about 150 wholesale and retail stores in Detroit.

The foregoing few examples give some idea of the kind of work that the modern self-propelled commercial vehicles are performing and the cost at which their work is done. There has never been any question that they could do more work in a given time than horse-drawn wagons of equal size, and now that their dependability and economy is being demonstrated conclusively they are coming rapidly into general use.

It is interesting to note that the light

Data of Trip of Packard Baggage Truck with Glidden Tourists.

July	Route.	Miles.	Elapsed Time H. M.	Gasoline Used, Gals.	Lub. Oil Used, Qts.
11	New York to Hartford	121	8:32	11	1 1-5
12	Hartford to Boston	121 1-2	9:13	11	1 1-4
13	Boston to New Castle	63	5:00	5 1-4	3-4
14	New Castle to Bretton Woods	108	*17:45	9 1-2	1
16	To Base Mt. Washington and return	80			
18	Ascent and descent Mt. Washington	16		10	1
19	Bretton Woods to Concord	103	†19:00	10	1 1-4
20	Concord to Worcester	99	9:00	9	1
21	Worcester to Lenox	100	10:30	9 1-3	1
22	Lenox to New York	150	16:15	14	1 1-2
			95:15	89	10

* Lost 2 1-4 hours by taking wrong road in the dark; 2 hours assisting touring cars over bad roads and hills; 1 hour for breakfast.

† Lost 5 hours getting out of deep ditch into which truck had skidded in turning out for frightened horse.

steam delivery wagon has given way to the light gasoline business wagon, and that the heavy steam truck that has had considerable vogue in England has made little progress in America, notwithstanding a number of expensive attempts have been made by American companies to produce such vehicles, to burn coal, kerosene or gasoline. The gasoline or explosion engine business wagon in the heaviest truck, as well as in the light delivery wagon and medium-size vehicle types, has leaped to the fore even more quickly than the gasoline pleasure vehicle did. Electric commercial vehicles have consistently held their own, and still predominate in all types and sizes, though their supremacy is seriously threatened now by the gasoline vehicles, which have the advantage in economy of operation and maintenance and are adapted for long trips over country roads, while the electrics are confined to city use and to a mileage of about thirty miles on one charge of the battery.

In the following pages are illustrated and described a number of typical commercial vehicles of different types, sizes and styles of bodies adapted to all sorts of work.

Cadillac Light Commercial Car.

The regular Model F touring car chassis made by the Cadillac Automobile Company, of Detroit, is fitted with a special, roomy, closed body, to be used for light delivery work. Its carrying capacity is 400 to 600 pounds, but in actual service the vehicles have been loaded much heavier than recommended yet have not failed in any way. The inside dimensions of the body are: Length, 42 inches; width, 40 inches, and height, 50 inches. The vehicle, which is especially recommended to merchants for light, quick work, is fitted with a single-cylinder 9-horsepower gasoline motor disposed longitudinally under the body and cooled by water. Transmission is through a two-speed planetary gear by chain to the differential, and the sprocket combination gives a maximum speed of about eighteen miles an hour. The weight is approximately 1,400 pounds. Pneumatic tires 3 1-2 inches in diameter are fitted to the 30-inch wheels. The selling price is $950.

One of these delivery wagons which was placed in service by W. W. Snyder & Co., of Newark, last July, had been driven more than 6,000 miles up to the beginning of last December, at a total cost for gasoline and oil of only $190. The saving in expense over a horse-drawn wagon during the period of five and a half months, is said to have been $567.84.

Rambler Convertible Delivery Wagon.

A machine designed to be used during business hours for light delivery purposes and then converted by a few minutes' work into a pleasure vehicle to be used as a two-passenger runabout or a four-passenger touring car, is manufactured by Thomas B. Jeffery & Company, of Kenosha, Wis., and is illustrated on page 155. Fitted with covered body, as shown, this vehicle will hold nearly two cubic yards or carry a dead load of 500 pounds. It is geared as desired by the purchaser, to suit level country or hilly sections and bad roads. The body is removable along the diagonal moulding on the rear panel, leaving the front seat so that the machine can be used as a runabout. At a cost of $100 in addition to the regular list price, a tonneau can be supplied, giving the purchaser the choice of three models in one—a combination that appeals especially to many tradesmen in small cities and villages.

The car is driven by a single cylinder 7-horsepower explosion engine placed longitudinally under the middle of the body. An angle steel frame which supports the power plant and body is carried upon four full elliptic springs. Extra heavy tubular axles adjustable to wear are used and the 28-inch wood artillery wheels are fitted with 3-inch detachable tires. As natural or thermo-syphonic circulation is relied upon to cool the cylinders, there are no pump or fan complications. A centrifugal governor automatically times the ignition; in fact, the vehicle is especially designed and built to be as simple as possible in operation in order that skilled operators will not have to be employed. The planetary transmission furnishes two forward speeds and reverse, and there are emergency brakes on the rear wheels in addition to the regular transmission brake. The list price of this vehicle is $850, complete with two oil side lamps, a brass horn, tools, oilers, pump and repair kit.

Thomas B. Jeffery & Company are prepared, at some delay, to supply a delivery body constructed after the same general style as the one illustrated and having the convertible feature, to be fitted to the Rambler 18-horsepower chassis. This machine has a 90-inch wheelbase, pressed steel frame, full elliptic springs, two 5 by 6 inch opposed cylinders, and transmission, cooling and sparking system similar to the small car. The wheels are thirty inches in diameter and are fitted with 3 1-2-inch detachable tires. The list price of this vehicle is $1,250.

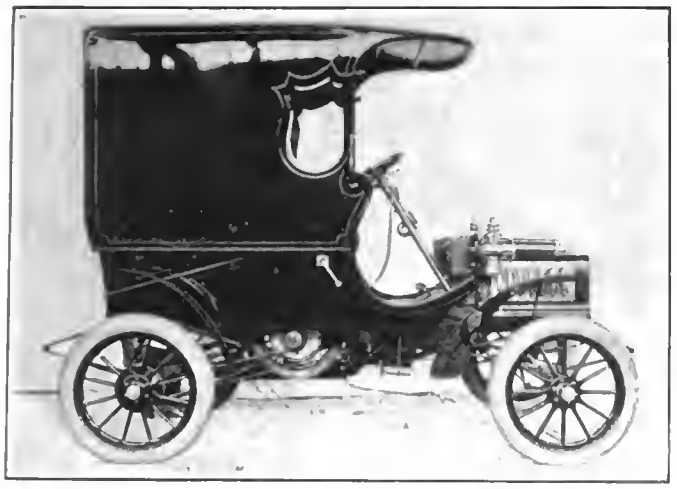
Olds Heavy Delivery Wagon.

This vehicle, shown in the engraving fitted with permanent top, wire cage sides and storm curtains, handles a load of 2,000 pounds, and is suitable for medium-weight work, such as express service, wholesale merchandise transfer, hardware haulage and similar work. It is especially designed for regular and long continued service, and, since the momentum of a car carrying a heavy load is so great that there would be danger in running at high speed, the maximum speed is fixed at sixteen miles an hour. The power plant is a two-cylinder vertical engine, developing 16 horsepower, which is sufficient for all grades and for heavy going. The frame is of pressed steel, the transmission of the planetary type and the drive by side chains. The running gear is provided with transmission and internal hub brakes. Pneumatic tires 30 by 4 1-4 inches are fitted; the gasoline tank holds eleven gallons and the water tank capacity is ten gallons. The carrying space measures 66 inches long, 58 inches wide and 43 inches high, giving a cubic capacity of 87 feet. Bodies can be furnished to suit the customer—screen or panel sides, open express or light truck platform. The selling price, with standard body, is $2,000.

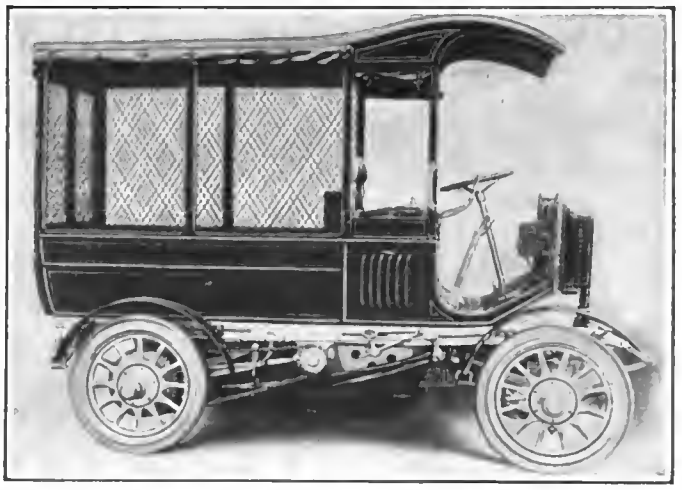
Besides this type of commercial car, the Olds Motor Works, of Lansing, Mich., manufacture a light covered delivery wagon of 10-horsepower to sell for $1,000, and a

Record of Trip of Knox Truck in Company with Glidden Tourists.

Start		Finish		Net running time	Miles travelled	Gasoline used, gallons	Oil used, gallons
New York	3:15 A.M.	Hartford	4:15 P.M.	7:31	122 3-8	14 1-2	1-2
Hartford	6:00 "	Boston	3:15 "	7:05	123	12	1-2
Boston	6:40 "	Portsmouth	11:40 A.M.	4:25	77	8	1-4
Portsmouth	6:00 "	Bretton Woods	5:20 P.M.	9:20	120	15	5-8
Bretton Woods	6:08 "	Concord	7:15 "	10:00	112	15	1-2
Concord	6:02 "	Worcester	3:10 "	7:30	104 1-8	10	3-8
Worcester	6:12 "	Lenox	3:15 "	7:45	115	10	1-2
Lenox	7:00 "	New York	9:30 "	11:00	151	16	3-4



RAMBLER PLEASURE CHASSIS WITH DELIVERY BODY.



OLDS GASOLINE HEAVY DELIVERY WAGON.

ten-passenger canopy top coach for omnibus and stagecoach work, to sell for $2,200.

Knox Air-Cooled Wagons.

The most varied line of gasoline commercial vehicles in the market is that produced by the Knox Automobile Company, of Springfield, Mass., which has been making a specialty of delivery wagons and trucks for all sorts of uses for several years with unusual success. A large number of its vehicles are in regular use by business houses in Boston, New York and other Eastern cities, including hilly Pittsburg, and its passenger stages are being used on regular lines in Porto Rico and Cuba. One of its most popular selling lines at the present time is a combination or convertible pleasure and business car of the latest type, similar to the four-seat machine shown in one of the illustrations on page 159. The cross seats are easily removed and a set of sides fitted onto the low rail that the sides rest upon, making a fully equipped business car in about two minutes. Three different styles of tops are made for this vehicle, all of which are removable.

Two sizes of chassis are built for work of different kinds, one, for light work, having a single-cylinder, air-cooled engine of five inches bore and eight inches stroke, and the other, for heavy work, having a double-opposed engine of the same type, with five by six or five by seven inch cylinders. The construction of both types is much the same, the engine being disposed longitudinally under the middle of the body and the power plant and body carried upon long side springs connecting the front and rear axles and taking the place of the usual elliptic or semi-elleptic springs. Planetary gearing gives two forward speeds and reverse, and drive is by single chain to the differential in the middle of the rear axle. Left side control is adhered to, with lever steering made irreversible by Lemp hydraulic check.

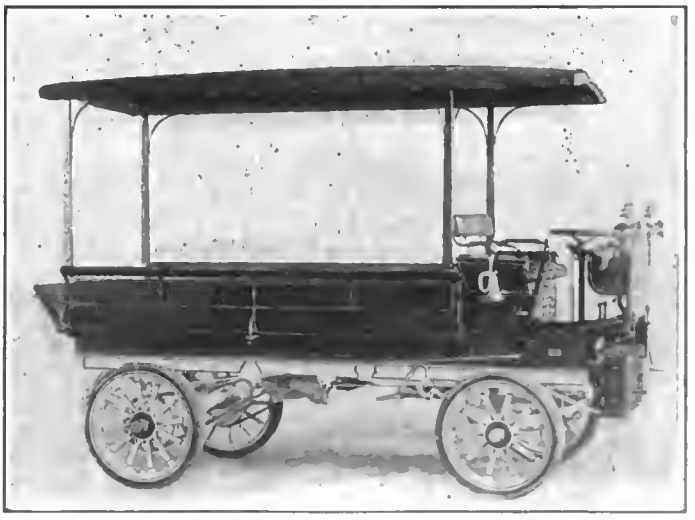
Capacity and speed of the single-cylinder cars varies with the style of body and the nature of work to be done, the capacity ranging from 600 to 1,500 pounds and the speed from fifteen to twenty miles an hour. Tires are either solid or pneumatic, according to the purposes for which the vehicle is sold and the desires of the purchaser.

The load-carrying ability of the two-cylinder vehicle is 2,500 pounds, and the maximum speed eighteen miles an hour. The two-cylinder passenger buses will accommodate twelve to fourteen persons. Almost any style of body desired can be furnished, from light covered delivery wagon to police patrol, ambulance, express, side-seat passenger and open stake truck types. Prices vary from $1,600 to $2,900.

Premier Express Wagon.

A concern that until very recently has devoted its energies to the manufacture of pleasure cars, but has recently brought out a light truck and installed facilities for manufacturing this type of vehicle on a large scale, is the Premier Motor Manufacturing Co., of Indianapolis, Ind. The Premier light truck, which has a carrying capacity of 1,500 pounds, is equipped with the regular Premier vertical four-cylinder air-cooled motor, set transversely across the front of the car under an open-fronted bonnet. The motor is rated at 16 horsepower, and the gearing is so calculated as to give the car sufficient speed for its work, together with plenty of power for hills and bad roads. The air-cooled feature is considered a great point in favor of this car, as it eliminates all water circulation troubles and does away with the possibility of freezing up in cold weather. The axles

WAVERLEY 1,500-POUND TRUCK WITH UNDERSLUNG BATTERY.



PACKARD TRUCK WITH 2-CYLINDER VERTICAL MOTOR

are heavy; the wheels are of the artillery type, 32 inches in diameter, with 3 1-2-inch solid rubber tires. Wheelbase is 118 inches. Driving chains and sprockets are heavy, to enable them to withstand the strain of heavy commercial work. The minimum speed is about two miles an hour, while the maximum is about eighteen miles an hour—more than sufficient for the work such a vehicle is required to do. The load-carrying portion of the body is 72 inches long, 42 inches wide and 10 inches deep; flaring sides increase this depth by 5 inches.

The Premier company states that its first delivery wagon, which was built more than a year ago, is still in hard and constant service and is giving satisfaction to its owner. The Premier delivery wagon lists at $1,400.

Packard Two-Ton Truck.

An example of the latest development in business vehicles is the Packard gasoline truck, designed and built throughout for the work it is to do, but employing the same mechanical features and embodying the same engineering principles that are incorporated in the touring car made by the Packard Motor Car Company, of Detroit. The power plant consists of a two-cylinder vertical motor disposed under the seat at the front and driving through a universal-jointed shaft and sliding gears to a countershaft, whence the drive is by side chains to the rear wheels. The sliding gears give three forward speeds of three, eight and twelve miles an hour, and one reverse at three miles. There are double and triple ball bearings throughout. The front axle is of extra heavy weldless steel tubing, and the rear axle of solid two-inch square forged steel. The wheels run on roller bearings. Water cooling, ignition, carburetion and control systems are similar to those of the pleasure car. An armored wood frame, supporting the power plant and body, is carried on semi-elliptic springs in front and on platform springs at the rear. For holding heavy loads back on steep hills, there are, in addition to foot operated brakes clamping on the outside of the rear wheel drums, emergency brakes expanding inside the drums and controlled by hand lever. Solid tires of 3 1-2-inch size are fitted to the 32 and 34-inch wheels. The wheelbase is 94 inches and the tread 58 inches.

Owing to the great diversity in styles of bodies demanded, the chassis is sold separately, the price being $2,500, f. o. b. Detroit, complete with driver's seat, dashboard, tires and lamps, ready to run. Bodies are sold separately, the prices running from $100 for the plain platform type, up to $300 for enclosed bodies, and as high as $1,100 for full omnibus bodies.

Some of the work that the Packard truck has been doing is reviewed in the introductory to this article.

Waverley Electric Vehicles.

One of the earliest builders of electric delivery wagons in this country was the Waverley factory in Indianapolis, now operated by the Pope Motor Car Company. The company has stuck persistently to the manufacture of these in addition to its line of electric pleasure vehicles and has added new and larger models of business vehicles, all of the electric type. These are produced in a number of styles and sizes for different kinds of work. A popular model is the closed delivery wagon with a carrying capacity of 500 to 800 pounds, which is especially suitable for use by shoe stores, druggists, caterers, laundries and florists. It has a reachless running gear, carrying the body, to which is attached the underslung battery, on four full elliptic springs and having its artillery type wood wheels shod with pneumatic tires. Its power plant consists of two electric motors of 3-horsepower each and a battery of forty Exide or National cells. The body carrying space is four feet three inches long, two feet ten inches wide and four feet two inches high. The list price, complete, with top, is $1,400. The same chassis can be furnished fitted with an open delivery wagon body for use by grocers and butchers.

A very serviceable vehicle for transferring boxes of drygoods, barrels of china and earthenware, gas ranges and similar bulky stuff is the 1,500-pound stake truck illustrated on page 155. It has an overall length of fifteen feet and a width of seven feet two inches, with a floor space measuring eleven feet four inches by four feet three inches. The wheel tread is seventy inches. Two Westinghouse motors are hung from the body in front of the rear axle and drive to the rear wheels by chains. A Westinghouse controller is fitted and steering is by irreversible hand wheel, as in all the Waverley commercial vehicles. The underslung battery contains forty-two medium size National or Exide cells. An expanding brake operates on each rear hub. Front wheels are 36 inches in diameter and rear wheels 42, all fitted with 3-inch solid tires. List price, $2,000.

An ambulance and police patrol is one of the models made in the medium-weight vehicles. It seats ten persons inside and two on the front seat, is equipped with steps and hand rails at the rear and has a glass front and storm curtains in front. The price is $2,750.

Four and five-ton trucks with immense bodies, to be used for hauling beer barrels, heavy general merchandise and similar articles, are recent additions to the Pope-Waverley line. The general merchandise truck has an overall length of twenty feet two inches and a width of eight feet two inches. The platform is eighteen feet long by six feet four inches wide. Two Westinghouse motors drive direct to the rear wheels by short side chains. The 36-inch wood wheels are fitted with 5-inch solid tires in front and 6-inch solid tires at the rear. A permanent canopy top is fitted and has side curtains to be let down in case of storm. List price, $3,750.

COLUMBIA 48-PASSENGER ELECTRIC SIGHTSEEING VEHICLE.

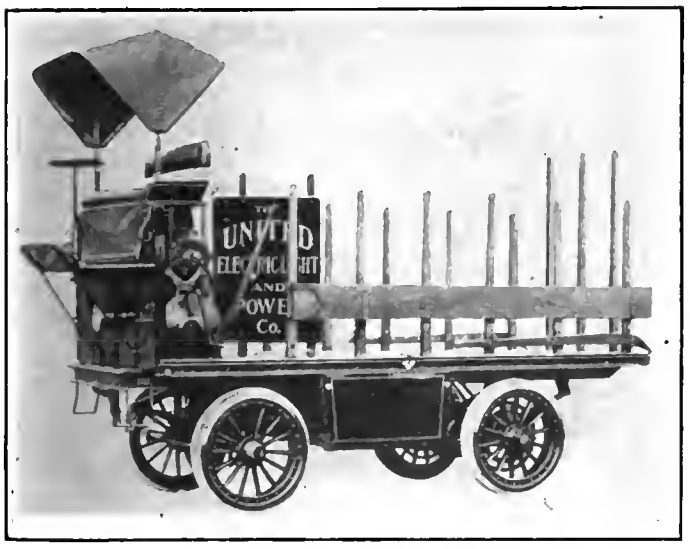
Lansden Electric Wagons.

Bodies in endless variety for different kinds of work can be fitted to the chassis marketed by the Lansden Company, of Newark, N. J., which has devoted several years of study and experimenting to the production of a single chassis type. The chassis is complete in itself so far as operation is concerned, and the easy removal of the body, complete or only in part, permits a thorough inspection of machinery and running gear.

The vehicle is of the electric type, driven by a single motor swung on the frame directly over the front axle. The motor and the controller, which gives three speeds forward and two reverse, are built especially for commercial work. The motor drives by single chain to a cross differential countershaft, and the countershaft by two chains to the rear wheels.

KNOX DELIVERY WAGON WITH AIR-COOLED MOTOR.

LANSDEN CHAIN-DRIVEN ELECTRIC EXPRESS WAGON.



V. E. CO.'S ELECTRIC STAKE TRUCK WITH HOISTING WINDLASS.

V. E. CO.'S TWO-TON ELECTRIC DELIVERY WAGON.

CADILLAC 9-H. P. GASOLINE LIGHT DELIVERY WAGON.

WAVERLEY CLOSED BODY ELECTRIC DELIVERY WAGON.

The battery box is hung under the bed of the wagon, suspended from the armored wood frame, where it is entirely out of the way and does not reduce the carrying capacity of the body. The entire weight of the power equipment is carried, together with the frame and body, on four long, semi-elleptic springs clipped to solid axles. The Lansden line of standard wagons includes the open top express wagon, illustrated on page 157, the closed panel merchandise wagon, and the overhung platform type of vehicle. The mileage capacity ranges from twenty-five to thirty-five miles on one charge of the battery, and the weight of the complete vehicle is from 2,800 to 3,300 pounds depending on the capacity of the battery and the style of body necessary.

The open express type of Lansden vehicle, like the one illustrated, sells for $1,850, with lead batteries, or $2,000 with Edison batteries. The closed panel type is listed at $1,950 and $2,100, respectively, all f. o. b. Newark.

Studebaker Electric Trucks.

Electric delivery wagons, with panel sides, made in two sizes of 1,000 pounds and 2,500 pounds capacity, and stake trucks of 3 1-2 and 5-ton capacity, are regularly catalogued by the Studebaker Automobile Company, of South Bend, Ind., in addition to its line of electric and gasoline pleasure vehicles. Novel features of the delivery wagons and trucks, which have a standard type of chassis built in different sizes, are the suspension of the motors from the angle steel side frames behind the rear axle and the inverted truss method of suspending the battery under the body. Each chassis has two motors, which transmit their power through a geared countershaft from the ends of which the drive is by short chains to sprockets on the drive wheels. The battery is carried under the body in an angle steel frame trussed to the side frames. A distinctive Studebaker feature is the division of the battery into four trays containing ten cells each. This obviates the expense of keeping an entire extra battery on hand, as one extra battery tray should be all that is necessary for two or three wagons, since a single tray can be used to replace any one tray removed from the wagon for cleaning or repairs.

A controller at the left of the driver's seat gives four speeds forward and four reverse.

Steering is by hand wheel through pinion and segmental spur gear. Two independent sets of brakes form part of the equipment of every wagon, one operating on the motor countershafts and the other expanding inside of drums bolted to the spokes of the drive wheels. Lubrication of the motors follows the standard practice in street railroad motors, being effected by absorbent pads, while the axles and other bearings are lubricated in the same simple way as on horse-drawn vehicles of similar type.

The piano delivery wagon, shown on page 159, which is the same except as to body as the Studebaker open express wagon, has a weight carrying capacity of 2,500 pounds, will travel thirty miles on one charge of the battery and has a range of speed of from three to nine miles an hour. Overall length is 168 inches and width 73 inches. The weight of the vehicle complete is approximately 5,400 pounds. Solid rubber tires, 36 by 3 1-2 inches, are fitted.

Prices are quoted as follows: Delivery wagon with a panel side, capacity 1,000 pounds, $2,200; delivery wagon, panel sides, capacity 2,500 pounds, $2,600; 3 1-2-ton truck, stake side body, $3,500; 5-ton truck, stake side body, $4,250. A piano wagon like the one illustrated sells for $2,600.

Columbia Electric Business Vehicles.

A regular and very important part of the business of the Electric Vehicle Company, of Hartford, Conn., is the building of electric vehicles in a number of sizes and fitted with a variety of styles of bodies. After an experience in this line of work extending through a number of years, the company has established what it believes is a permanent standard of construction. Its chassis is entirely independent of the body, which may be of any style to suit the requirements of the purchaser. It includes the complete running gear, battery, controlling apparatus, seat platform and all electric wiring. Five sizes of this chassis are built, to carry loads of 1,000, 2,000 6,000, 8,000 and 10,000 pounds and to be fitted with bodies ranging from the light, closed delivery body to the heavy, open truck body.

The electric motors are hung from the I beam steel frames in front of the rear axle and drive to the rear wheels by short chains. The battery box is also suspended from the frame, so that all locomotive parts have the benefit of the cushioning effect of the body spring suspension. Irreversible hand wheel steering is provided, and in some of the vehicles the usual horizontal side lever controller is replaced by a vertical controller operated by a small hand wheel under the steering wheel. Solid rubber tires are part of the equipment on all models, a fact that has much to do with economical running of the wagons. The mileage per charge of the smaller models is thirty-five miles, and the speed from eleven to thirteen miles an hour, according to type. The two and a half to five-ton trucks have a maximum mileage of twenty-five and thirty-five miles, respectively, on one charge of the battery and maximum speeds of six, eight and eleven miles an hour.

Columbia commercial vehicles are well known through their extensive use in the large cities of the country, notably in New York, where R. H. Macy & Company have fifteen covered delivery wagons of this make, and the city hospitals employ several electric ambulances, and in Buffalo, where the Adams Express Company operates twelve Columbia express wagons, which ran steadily through the heavy snow storms of the hard winter of 1903-4. There is a wide range in prices for the different models. The one-ton delivery and express wagons sell for $2,500, and the five-ton open brewery truck for $4,000.

Two special styles of Columbia vehicle are illustrated, one an open truck of 6,000 pounds capacity, especially provided with an electric windlass for rolling heavy reels of telephone cable onto its own platform and for pulling such cable through conduits under the surface of streets in the city. This truck, which has a speed of eight miles and a radius of thirty miles on one charge, has double reduction gear, and chain drive from two motors, and is provided with an emergency switch and duplex brakes. Its price is $3,700, without windlass.

The other vehicle is a special new type that is coming rapidly into demand for sight-seeing purposes in large cities. A dozen huge brakes of this type are in use in New York alone. The Columbia sight-seeing car seats forty-eight persons, six on each of the eight seats. The seats are elevated progressively from the front to enable those at the rear to see forward over the heads of the other passengers. The maximum speed is eight miles an hour and the range of action on one charge of the battery twenty-five miles. The wheelbase is 123 inches. The 36-inch wheels are fitted with 7-inch Firestone solid sidewire tires. The power plant and control are similar to those of the truck previously described. Entrance to the seats is by steps carried in the car. The price of the vehicle is $4,800.

Logan Trucks and Buses.

An open bed 1,700-pound truck, driven by a 20-horsepower double opposed cylinder engine is a regular model of the line of gasoline cars built by the Logan Construction Company, of Chillicothe, O. The engine and transmission are the same as in the Logan touring car, except that the truck is geared to from twelve to fifteen miles an hour on high speed. The truck, however, is built much heavier than the touring car and is guaranteed to carry a load of 2,000 pounds. Although built along the same lines as the touring car, the machinery is so mounted that no working part protrudes above the frame, so that a body with a perfectly flat floor can be fitted. Any style of body can be supplied at the regular price, for the complete vehicle, of $1,600, unless the cost of construction of a special body is greater than for the standard body. The regular equipment is solid tires, but pneumatics will be put on if desired. The transmission is of the sliding gear type, furnishing two forward speeds and driving direct on the high. A contracting band clutch is used, and drive is by single chain to the differential.

A ten-passenger omnibus or stage with

LOGAN TEN-PASSENGER GASOLINE STAGE ON COMMERCIAL CHASSIS.

KNOX CONVERTIBLE STAGE WITH AIR-COOLED MOTOR.

similar chassis was recently completed and is in operation between Chillicothe and Bainbridge, a distance of nineteen miles. It makes two trips a day and is usually filled. There are two 10 per cent. grades of considerable length which the stage takes on high gear with full load, making the nineteen-mile trip in one hour thirty minutes on its regular schedule. The Auto Rapid Transit Company, which operates this bus, has placed an order for thirty similar machines to be used in different sections of the country where it is establishing stage lines.

PREMIER OPEN EXPRESS WAGON WITH VERTICAL AIR-COOLED GASOLINE MOTOR.

Casaday Gasoline Engine Trucks.

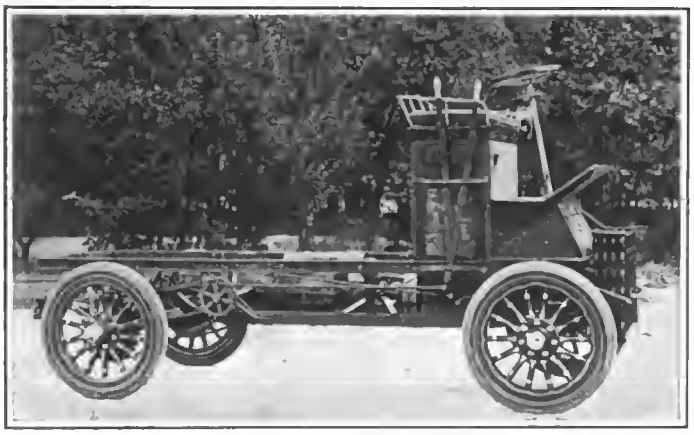
Among the latest concerns to make their advent into the field of heavy truck manufacture is the W. L. Casaday Manufacturing Company, of South Bend, Ind. Two sizes of standard chassis are built by this concern, the smaller for loads up to three tons and the larger for loads up to five tons. These chassis are adapted to take any style of body desired, the regular styles furnished being police patrols, with and without top, fire hosecarts, eighteen-passenger brakes, and depot busses, and United States mail wagons, all suited for the small size chassis. Brewery trucks and any style of express or truck bodies are built to order.

The power plant of the chassis consists of a four-cylinder vertical water cooled engine of 35 to 40 horsepower, with a speed variance of from 150 to 1,500 revolutions per minute. Valves are mechanically operated and the engine is provided with an auxiliary camshaft to aid in starting the engine and to insure very low speed for the engine when standing. Sliding gear transmission giving three forward speeds is regularly fitted, but if desired either individual clutch or friction drive will be substituted for it. Ignition is by magneto generator and circulation is forced by positive geared pump through extra large spiral fin radiator. Drive is by side chain from differential countershaft, and the rear wheels are fitted with double-acting brakes.

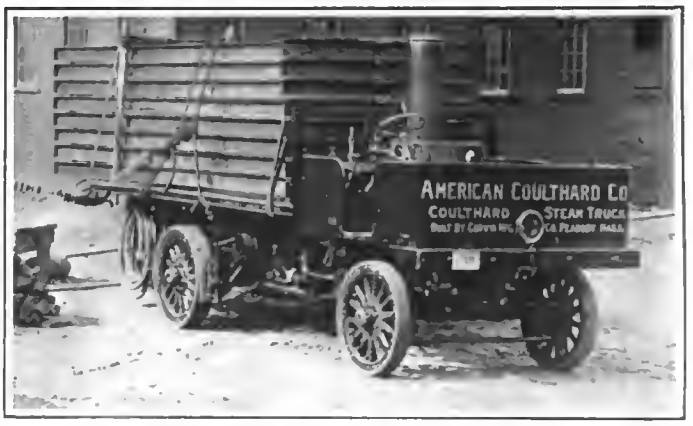
The total weight of the small chassis is 3,800 pounds; wheelbase, 108 inches; tread, 60 inches. The chassis alone is quoted at $3,000; large size, $3,500. Bodies of different types for the small running gear range from $400 to $600.

STUDEBAKER 2,500-POUND ELECTRIC PIANO TRUCK.

COLUMBIA ELECTRIC CABLE TRUCK WITH WINDLASS.



CASADAY GASOLINE TRUCK WITH 4-CYLINDER MOTOR.



AMERICAN COULTHARD HEAVY STEAM TRUCK.

One of the small trucks is doing regular freight duty in South Bend, and in two hours does the work that a heavy team has been taking nine hours to do. A run of twenty-four miles, to Hudson Lake, Ind., was recently made with it in one hour five minutes on a consumption of one pint of lubricating oil and three gallons of stove gasoline.

Vehicle Equipment Co. Electric Trucks.

Heavy commercial vehicles for many unusual purposes have been built by the Vehicle Equipment Company, of New York, for use by business houses in the city ot New York. Among these may be mentioned brewery trucks, tilting coal wagons, safe hoisting trucks, telephone cable hauling trucks, trunk delivery wagons with bodies built in imitation of a trunk, ambulances, and so on. A large number of V. E. electric delivery wagons and two, three, and four-ton trucks are also in use in the metropolis.

The distinguishing feature of this make is the "pedestal" axle guide, a cast steel bracket bolted to the I-beam side frames on each side above each axle and having a rectangular slot in which the axle has free movement up and down under the action of the springs, but has no longitudinal nor lateral play. This relieves the springs of all undesirable driving and twisting stresses, so that they have only to support their load vertically. The batteries are carried in a cradle underneath the platform, supported from the side frames; and two motors, also suspended from the side frames, in front of the rear axle, drive the rear wheels by pinions engaging with spur gears bolted to the hubs. Irreversible wheel steering through pinion and segment is used, and ample expanding brakes act in large drums within the spur gears. Any desired sort of body can be fitted to the chassis.

The Park & Tilford delivery wagon, built by this company, has a load capacity of 2,000 pounds, a mileage of thirty-five on one charge of the battery, and is geared to a maximum of ten miles an hour. The electric hoist truck will carry 4,000 pounds thirty miles on one charge at a maximum rate of eight miles an hour.

Special arrangements are made by the manufacturers' selling agents with their New York customers to store and care for the vehicles and recharge and keep the batteries in repair for a stipulated price per year, a feature that relieves the purchaser not only of all annoyance in connection with this work, but also of uncertainty as to the expense of operation and maintenance.

Whiting Convertible Gasoline Trucks.

Convertible trucks that may be used as passenger, observation or sight-seeing brakes in summer and for transferring heavy freight in winter, are built by the Chicago Commercial Auto Manufacturing Company, of Harvey, Ill. One of the company's five-ton trucks is shown on this page, carrying a load of tiling and hauling a trailer similarly loaded for the Chicago Telephone Company. A record of the work done by this truck kept for the forty-one days ending June 5 last, shows an average daily mileage of slightly more than twenty-three miles, with an average of 2 1-4 loads per day. The total weight carried averaged 24,893 pounds per day, and the average total elapsed time in service, which included loading and unloading, and time spent idly during meal hours, was slightly more than ten hours. Its heaviest day's work was on May 3, when it traveled fifty-four miles, carrying three loads aggregating 35,425 pounds, in nineteen hours elapsed time.

Chassis are built in a number of sizes—delivery wagons of 2,500 pounds capacity, and two, three and five-ton trucks, and observation cars to carry twelve, twenty-four and thirty-six passengers. All are fitted with four-cylinder gasoline engines disposed vertically over the front axle and under the driver's seat. The engines are of two sizes—4 3-4 by 4 1-2-inch, developing 24 horsepower in the smaller vehicles, and 6 by 6 inch, developing 40 horsepower at 800 revolutions per minute in the larger sizes of trucks and observation cars. All are fitted with solid rubber tires. Maximum speed of the five-ton truck and twelve-passenger cars is twelve miles an hour; of the three-ton truck, fifteen miles an hour; of the two-ton truck and thirty-six passenger car, fifteen to twenty miles an hour. Change-speed is by sliding gears and transmission by side chains.

A cab with glass windows in front and sides is built on the heavy trucks for the protection of the operator in winter weather.

WHITING CONVERTIBLE GASOLINE TRUCK, WITH LOADED TRAILER BEHIND.

If preferred, the cab will be omitted and a winch, operated by the gasoline engine, fitted. Coal trucks of six tons capacity and with either rear or side delivery are among the models also listed by the manufacturers, the prices being $4,150 and $4,200 respectively. The open platform five-ton trucks have an over-all length of 18 feet 3 inches and a width of 6 feet 10 inches, and list at $4,000.

American Coulthard Steam Truck.

One of the very few steam trucks in the American market is the Coulthard, a heavy freight vehicle that has been manufactured and used with much success for a number of years in England and for the manufacture of which the American Coulthard Company, of Boston, possesses the American rights under the English patents. One of the first of these heavy machines made in America is illustrated on page 160 loaded with a number of angle steel frames.

Steam is generated in a multi-tubular vertical boiler located directly behind the front axle and carried between the channel steel side frames. Coke or coal is fed from above through a central tube, the fuel bunker, having a capacity of twenty cubic feet, being directly in front of the driver and extending across the front of the cab, so that the driver can fire up without leaving his seat. The boiler is constructed for a working pressure of 200 pounds to the inch and is of steel, with the exception of the tubes, which are of drawn copper. The upper half of the shell can be removed readily for inspection and cleaning. The grate area is four square feet and the heating surface 106.8 square feet, giving a large reserve power capable of meeting the varying demands of the engine and obviating the need of change-speed gearing. An automatic feed water pump is worked off the end of the second motion shaft by means of an eccentric and is so constructed that the plunger is not exposed to grit and dirt.

A cross compound engine fitted with link reversing gear develops 30 horsepower at the normal speed of 550 revolutions per minute. The cylinders are 4 by 7 inches and the pistons have a 6-inch stroke. A distinguishing feature of the engine is the fact that only one cover is used for both cylinders and piston valves, and is arranged to serve as the receiver while supporting the multiplier used to temporarily increase the power of the engine by admitting live steam to the low pressure cylinder.

A system of pinions and gears gives two ratios of gearing—10 to 1 and 20 to 1—between the engine and road wheels. The average speed is six to eight miles an hour with six-ton load. All of the gearing runs in a bath of oil, the compensating gear shaft, which is the only part that projects beyond the casing, carrying a driving pinion at each end. Silent driving chains are used and run over chain rings attached to the drive wheel rims, so that no driving strain comes on the spokes. Steering is by worm and wheel. A powerful screw-down brake, in front of the driver's seat, operates double brake blocks which act on each side of the rear wheels. A water tank at the rear carries enough water for a run of fifteen miles with full load, and a steam water lifter and hose enables the tank to be refilled in a few minutes from any convenient source. No visible vapor or smoke is emitted. Steel or wood tires are fitted to the gun-carriage pattern wheels. Body or platform is built to suit the purchaser. The list price of the standard truck is $4,000.

Friction Drive Gasoline Truck.

Among the comparatively new companies that are making a specialty of building large commercial vehicles is the American Motor Truck Company, of Toledo, which last spring brought out a new truck that proved very satisfactory in the trials that were made with it. This truck has an open platform body with a cab in front. The vehicle has a capacity of from five to six tons and a maximum speed of eight miles an hour. It is driven by a water-cooled gasoline engine, located under the cab, and transmission is of the friction drive type, but differs from the old style friction-disk pattern. Full details regarding mechanical features are not yet at hand.

Notes on the Use of Commercial Cars.

By HENRI G. CHATAIN.

THE early attempts in this country to produce a commercial vehicle, some six or seven years ago, all met temporary failure, due to a variety of reasons. It was primarily a case of trying to walk before knowing how to creep. The five-ton steam wagon was first exploited, presumably because the English and French had experimented with this type of vehicle with considerable success. Little attention was paid to the difference in conditions existing there and here—one demanding suburban work over the finest kind of highway, and strictly so maintained; the other for use in our large cities over the worst assortment of pavements imaginable and rarely maintained. After a large expenditure of money and many painstaking trials with the materials then at hand, experience taught that the five-ton steam trucks were not then practicable. The commercial motor vehicle was then practically at a standstill until the advent of the five-ton electric, which by its neat and clean appearance and extreme simplicity of control, was sought after immediately, and has been in service constantly since its first appearance, with success as a widely varying quantity, depending principally upon the care it gets. However, for many lines of work it will be extremely difficult to produce something better.

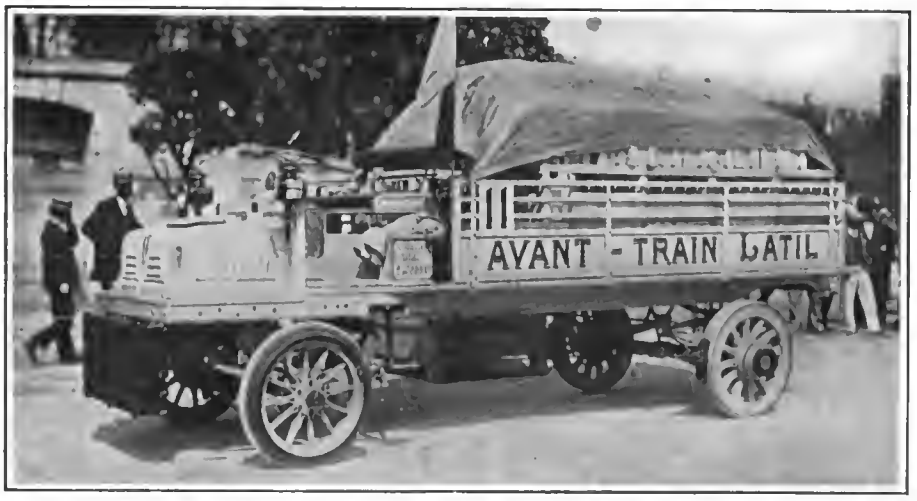
The refinement and general improvement of the gasoline automobile have no doubt had much to do with the present inclination to build commercial automobiles of this motive power, and for the past year they have been built in increasing quantities. These automobiles are usually constructed to carry loads of approximately 500 pounds to two tons. Many concerns have these cars in use in numbers of one to a dozen vehicles, and are apparently passing the word along, as new users are appearing continually. Their confidence in this new mode of conveyance must be great, as they are only in the experimental stage, and data as to their cost of operation and upkeep is still uncertain.

Great credit must be given to these pioneer users, as they are doing a tremendous work in bringing about and perfecting the commercial automobile. They will receive their recompense, however, in increased knowledge which will prove valuable in the future operation of their cars. One advantage that the pioneer user is enjoying is the advertising obtained by the use of the up-to-date method of transportation. This condition will, of course, gradually disappear, but to-day a neat looking car with appropriately garbed driver is certainly looked at with the thought running through one's mind that the concern in whose use the vehicle is must be progressive. The writer knows of two concerns which were practically forced to utilize motor cars, as several of their customers demanded it, stating that they were a benefit to their trade.

It is yet rather early to ascertain what effect the truck drivers' union will have upon operators of these cars. At present, many belong and many do not, but it is reasonable to assume that eventually they will form a union of their own which will be conducted along lines beneficial to themselves and their employers, as they must all be high-grade, intelligent men.

No opposition so far has made itself manifest to the new method of transportation. It is extremely gratifying to note that several large concerns in New York and vicinity have entirely done away with horses, and many to a large extent. One concern in particular states that under no circumstances would they return to horses, the work being done cheaper and better by the motor car. Many are very well pleased, the majority are fairly so, and a few are dissatisfied. It may well be said concerning the latter that the care and operation of their cars has been in the hands of some person who has charge of the horses or the "chief" engineer of the establishment—neither ever having had to do with a motor car before they derive their experience at the expense of the firm employing them.

The very fact that the majority of motor cars once put in service are kept in service is sufficient evidence that they are an economic success—one car usually displacing



LATIL GASOLINE TRUCK IN FRENCH TRIALS WEIGHING WITH LOAD ABOUT FIVE TONS.

from four to six horses, and at least one-half the number of drivers. Another great point in their favor is the fact that they require much less space for their housing as compared to horse service. Where a number of cars are employed, this amounts to an enormous sum, in one instance the difference in cost of a proposed building amounting to the outlay required to purchase the entire number of cars.

The most advantageous conditions for the operation of commercial vehicles is where the hauls are long and stops few; this permits of taking advantage of the greater speed of the motor car, which is its strong point, and it is usually upon such a route that the car is first placed by a concern entering upon the new method of transportation. This long haul delivery is especially advantageous, as it usually saves a couple of handlings by an express company, with attendant delays and breakages.

In justice to the automobile, it must be said that many are operated at a great disadvantage. One delivery car is generally purchased to give the new system a trial, and is promptly put in the stable under the care of the superintendent, and a driver from one of the horse rigs is promoted to its operation, after being "broken in" by a man sent by the manufacturer. It seems useless to say that such a combination will rarely prove effective and economical. The motor car is blamed, as usually it is put out of commission in a short time and probably laid up for a few days till competent help arrives.

A person to properly take charge of a motor car cannot be educated in a week or so, and it is costly to get experience in this way. To successfully keep cars in operation it is necessary to have a reasonable equipment in the way of a machine shop, where inspections may be made and repairs effected promptly, so that they do not increase in magnitude unnecessarily.

Where several cars are employed, one car should always be kept in reserve to insure the regular delivery and take care of any emergency that may arrive in the way of extra rush business. A detailed account should be kept of all that transpires in regard to the cars, as such records are extremely valuable to determine lease of life of many parts of the vehicle. Such records are rarely kept, and if so are usually incomplete. They should include a record of daily mileage and routes traversed and time consumed; when tires are put in commission, when repaired and replaced; consumption of fuel, lubricating oil waste; nature and cost of repairs and cause of same; and so on for all details.

A strict record should also be kept of the work of each operator, as he is one of the most important factors tending to make the service a success or a failure, and too much stress cannot be put upon this point. The writer has actually seen one set of tires worn out by one operator in one-half the time that another, performing practically the same service, occupied. This was due entirely to constant running in car tracks and the misuse of the brake.

It is indeed a very difficult matter to get good men who are willing to learn; the majority assuming that they know a great deal after having manipulated the levers for a week or so. The operator has very often a desire to test parts to as near destruction as possible, to see whether they are in running order or not. Speeding up the motor when unloaded to far beyond its normal speed is a favorite and frequent offense. Applying the brake too rapidly is another common and extremely bad practice, bringing unnecessary wear upon the tires and straining all parts generally. Driving the car over rough pavements at too high speed is likewise bad practice, being very detrimental to all its parts. This evil practice is very difficult to stop, as the driver cannot be watched, and he will make up for lost time if occasion demands it. The proper speed to operate commercial cars of varying capacity is a question which can only be settled by experience. Their economic speed must be determined by considering the fuel cost, depreciation, repairs, incurred by different rates of travel.

Great care should be taken to avoid overloading. A car designed to carry a maximum load of say two tons should not be called upon to work for long under a material increase in load, as all parts are strained unduly, especially the tires, one of the most costly components. The springs and axles also are rapidly deteriorated, at a rate which is not warranted by the benefit derived.

The great majority of commercial cars now in operation are shod with solid rubber tires, and up to loads of two tons, seem to be giving rather satisfactory service. The life of these tires is very variable, approximately 6,000 to 9,000 miles, and depends very largely upon the care and treatment they get at the hands of the operator. These tires (up to the loads mentioned) give adhesion under widely varying conditions of road surface, and also are an important element in decreasing repairs and depreciation, by minimizing vibration and shock. In winter is is necessary to use some non-slipping device, such as chains across the tire, which are attached in various ways. They are inexpensive and serve the purpose very well. Experiments are being made with wood tires, but they have not as yet been in service

ARIEL GASOLINE ARMY WAGON CARRYING ABOUT 2,700 POUNDS IN FRENCH TRIALS

on a sufficient number of cars to draw comparisons with the rubber tires.

To simplify the transmission in many instances the wheels are made of small diameter. From the conditions of our paved streets and highways generally, coupled with the fact that horse-drawn vehicles are always equipped with large wheels, it would seem that an error is being made in setting aside such experience by not equipping the commercial car with large wheels. The advantages are many: easy driving, decreased depreciation of vehicle generally and especially longer life of tires.

The type of gasoline engine usually employed on the commercial vehicle is the two-cylinder double opposed, its main advantages being simplicity and cheapness of construction in conjunction with its very fair performance in regard to torque and vibration. Many cars are built, however, using the four-cylinder vertical motor, making a more expensive construction, but possessing its well-known advantages of more uniform torque and excellent mechanical balance. Both types are satisfactory, and time alone will create a superiority.

Transmissions are usually of the planetary or sliding gear type, and both are successful for certain classes of work. The spring suspension of the commercial car is a very important point, and up to date there are few systems that could be called very satisfactory. There are many complex conditions entering into this problem, the discussion of which would be too lengthy here, but suffice to say that different type road surfaces require springs of different periods of vibration if the inequalities of the road are to be taken up

Industrial Vehicle Competition in France.

Special Correspondence.

PARIS, July 28.—The finest site in Europe was chosen by the Automobile Club of France for the inauguration of its first competition for omnibuses, trucks and military vehicles. In the western end of the Tuileries Gardens, behind the tall gilded railings which divide it from the magnificent Place de la Concorde, with the long Avenue des Champs Elysées stretching far away to the west, and in the background the shaded avenues of the gardens and the imposing Louvre Palace, it was indeed a royal spot.

Fifty-eight vehicles, out of a total of sixty-five engaged, were present yesterday for the weighing in. In addition to the different classes of commercial vehicles pure and simple the Paris General Omnibus Company had incorporated its scheme for transforming its horse service; the military element, too, was well represented, for the War Office had placed its competition for military wagons under the patronage of the Automobile Club. Last year the endeavors of the War Office to inaugurate a competition for self-propelled military wagons met with so little response that the event had to be abandoned. With the splendid lot of vehicles set before it this year it should not be long before the War Office transforms its transport service.

This is really the first time that industrial vehicles have received an official recognition in France. Notwithstanding the great lead that she has taken in automobilism, France had so greatly neglected the application of automobiles to the industries that there was a real danger of the country being left behind by other nations. This danger has been realized, and the national club has taken the matter up so energetically and organized its competition with so much care that there is every reason to believe that rapid progress will now be made.

This competition is divided into three classes: 1. Vehicles for carrying goods. 2. Omnibuses. 3. Military wagons. The first class is sub-divided into six divisions, beginning with motorcycles for rapid delivery, of which there were only three entries, and including classes for wagons carrying 200 to 500 kilograms (440 to 1,102 pounds), 500 to 1,000 kilograms (1,102 to 2,204 pounds), 1,500 to 2,000 kilograms (3,306 to 4,408 pounds), more than 2,000 kilograms (4,408 pounds), and motors towing several wagons. The 2,000-kilogram class brought together thirteen competitors, among them being a gasoline-electric Krieger wagon, a front-wheel-drive Latil, a Swiss car manufactured by Dufour Bros., and a German Daimler.

The omnibus class includes divisions for vehicles carrying more than six passengers, 'buses carrying twelve to fourteen persons, and 'buses for not less than thirty persons. This last-named division consists of omnibuses intended for service in Paris. The competitors are a Krieger gasoline-electric 'bus, the Gardner-Serpollet steam 'bus which has already undergone officials trials in the streets of Paris, a DeDion-Bouton gasoline 'bus, Eugène Brillé, and a Mors 'bus.

MORS OMNIBUS OF A TYPE BUILT FOR LONDON TRAFFIC WHICH WAS ENTERED IN THE FRENCH TRIALS.

The Mors omnibus is one which has been accepted for service in London. Its wheel base is 4 meters 315 centimeters (170 inches). A four-cylinder, 24-horsepower motor gives a maximum speed of nineteen miles an hour with a total load of thirty-four persons. The weight of the omnibus is 2,600 kilograms (5,730 pounds), and its price is $3,600. A large order for 'buses of this make has just been secured from England. The chassis will be built in Paris and the body work fitted in London.

Twelve military wagons were exhibited by Peugeot, Delahaye, Cottereau, De Dietrich, Gillet-Forest, De Dion-Bouton, Aries, besides a front-drive by Latil and a steamer by Gardner-Serpollet. The body work in every case was based on existing army models, the sides and hood being so bolted together as to be easily taken to pieces.

Weighing-in operations occupied almost the whole of yesterday, and were watched by a large number of persons, notwithstanding the blazing heat. The government was represented in the person of M. Clémentel, Minister of the Colonies, who paid a long visit, accompanied around the grounds by the Marquis de Dion, all radiant at this industrial demonstration, for which he has worked so long.

At 5 o'clock the heavy vehicles were sent off on the first stage of their journey, and this morning the faster delivery wagons and army vans were sent off between 5 and 6 o'clock. The heavy wagons carried their full load in the shape of sand bags, and the 'buses had their full loads of passengers. Several ladies were among these latter. There are seven daily stages over distances varying from twenty to ninety miles, points being given for regularity of running. Fuel consumption is noted, and will be given in the official report, although it will not influence the official classification.

The circuit chosen lies in the north of France, and in order to bring the matter of industrial automobilism before the public exhibitions will be held in Amiens, Rouen and Havre. The dates have been so arranged that the Havre exhibition will be held during the great French Nautical Week, when the town will be sure to be crowded with visitors from all parts. Various fêtes are also to be held at different points en route.

A competitor in an English reliability contest kept within the proper speed limit by using a three-minute sand glass, such as is used for timing boiling eggs. He turned the glass at every milestone. Just what advantage this arrangement has over a watch or automobile clock is not apparent.

If the end of the piston rod of the tire pump projects beyond the piston, cut it off as close as possible. If the piston does not go to the bottom of the cylinder, much time and labor will be lost by alternately compressing and releasing the air contained between the piston, when at the lowest point in its stroke, and the bottom of the cylinder.

Handling of an Air-Cooled Gasoline Car.

By HARRY B. HAINES.

THE machine fitted with an air-cooled motor has the remarkable distinction of being at once the simplest car manufactured and yet the most difficult for a beginner to successfully operate. That the car with the fewest mechanical intricacies and the least number of parts should be the easiest to handle would seem to be a fact settled beyond the chance of an argument, but experience has proven that the driver of an air-cooled car must handle his engine with more care and intelligence than the man with the water-cooled machine, in order to enjoy the same good results and satisfaction.

The air-cooled automobile received its impetus and popularity from the fact that in the early gasoline types water troubles figured prominently as the cause of delays and repair expenses, and were a great bug-a-boo; but to-day leaky radiators, cranky pumps, rotten hose, poor connections and burned-out gaskets do not figure to such an extent, and the air-cooled car depends for the greater part on its *simplicity* as an inducement over its competitor with the water tank and the circulating system.

Styles of Air-Cooled Cars.

There are in the air-cooled class machines of almost all types and weights ranging from the single cylinder runabout to the powerful four-cylinder touring car, but to date the medium weight and priced car in this type has enjoyed the largest sale.

Having selected an air-cooled car and come into possession of it, the owner should be willing to devote considerable time and attention to the mechanism of his machine before preparing for any long runs or making the car do much hard work. An air-cooled engine will keep cool under any condition of ordinary touring use, and is no more prone to delays from over-heating than is a water-cooled motor, providing that its user is posted on the manner that the machine should be used and exercises ordinary good judgment in his driving.

With the air-cooled motor it is perhaps more essential than with the water-cooled that overheating be avoided, for when the air-cooled cylinders are allowed to become much overheated they are invariably damaged to a much greater extent than the water-cooled ones. The loss of a fan belt or the clogging up of the oil feed has resulted in a cut cylinder and a stuck piston in many an air-cooled car, and there is in reality no reasonable excuse that may be offered for a man who allows this to happen except carelessness, and the repair bill is generally a reminder of sufficient "weight" to prevent future offenses.

After Buying the Car.

I have always found it an excellent idea after purchasing a new car to visit the factory where the machine is manufactured and there see its parts made and assembled and familiarize myself with them. A complete knowledge of the position of the various parts and their relations to each other is invaluable, and is the basis of a knowledge that will mean the saving of many dollars in repairs in after days, and greatly lengthen the life and utility of the machine.

Although perhaps a little troublesome to the mind of most purchasers, another good idea is to take the new car when it arrives and have the body removed and then inspect the various parts, and, by having the motor turned over slowly, note how they act. Even though repair shops are to be found in almost all cities and towns, every man should know for himself what is the matter when anything goes wrong with his car, and even though he does not desire to do the actual work of making repairs he will be able to direct them, and know what is a fair charge for the work done.

Handling the Motor.

Important above all things in automobiling is the handling of the motor, for it is here that the life of the car exists, and where the greatest damage may be done by carelessness and neglect. Be the engine a single, double or four-cylinder one, the basic principles are the same, and, generally speaking, may be summed up in a few don'ts, which from practical experience have been proven to me to be worth following.

In an air-cooled engine the getting of oil to the cylinders and on the pistons is the first consideration. In some machines a gravity feed is employed, while in many cars—and I might say in the majority of machines—a force-feed oiler is used. The engine should get from twenty to forty drops of oil a minute, according to the work being done, and the heat of the day, as well as the class of roads being negotiated. The oil supply should be steady and unvarying, and in order to insure this it is essential that the system be gone over and cleaned at least once in every thousand miles. All oil should be well strained before being put into the supply tank, and the greatest care taken to see that no foreign matter gets in that might clog up the check valves or the pump.

In the early types of cars trouble was at times experienced by oil flooding the engine after the machine had been stopped, thus fouling the plugs and causing a very disagreeable smoke when the engine was started. In cars fitted with oilers worked by compression from the crank-case this was often caused by the fact that the compression continued for some time after the engine had stopped its revolutions, and of course the oil kept on flowing. This trouble could be obviated by opening the compression relief after stopping the engine and cranking the engine slowly a few times, and

then leaving it with the compression relief still open, so exhausting all of the pressure in the cylinders.

Syphoning of Oil.

In cars fitted with oil tanks placed on the dash or inside the hood above the motor the same difficulty has been experienced as a result of the syphoning of the oil into the cylinders after the car had stopped. In most cars this has been overcome by placing the supply tank below the level of the engine oil feed.

The fact should be be borne in mind that too much oil is as bad as too little, causing sooting of the spark plugs and carbonization of the excess oil on the piston ends, in the cylinder heads and in the explosion chambers. This carbonized oil, gathered in little heaps, heats up after the engine has been running a short time and glows at a very high temperature, causing premature explosions of the mixture as it is aspirated for compression and robbing the engine of almost its entire power. When this condition has been reached with an air-cooled motor there is only one remedy, and that is to take the valves and pistons out, scrape the piston ends and the explosion chamber until all of the carbonized oil has been removed, and then replace the parts.

Gas and Spark Levers.

Next in importance to the oil as a factor in keeping the motor cool is the manner in which the spark and gas levers are manipulated. Realizing the great importance of this feature, one manufacturer of a popular type of car has arranged the gas and spark levers so that both are operated at the same time and by the movement of the same lever. In this case economy of operation was sacrificed to make the machine "fool proof," and, as far as possible, avoid the overheating of the motor, which might result from careless driving. The same firm, after a purchaser had become familiar with his car, stood willing to sell him a special throttle by which the gas and spark might be worked separately. The importance of this use of spark and gas can be in no better way impressed upon the mind of a user of an air-cooled engine than by the action of the manufacturer of this machine, who did not care to trust a novice in securing a proper mixture unaided.

Racing of the motor is another error fatal to the efficiency of an air-cooled engine, and it invariably causes heating up, whether it be the result of a loose clutch or the ignorance of the driver. The best results are achieved by driving with the gas retarded as far as possible to get the power desired, and using an advanced spark only when desiring to speed on the level. When climbing a hill either from a slow or a flying start, the engine will develop more power if the gas lever is advanced and that controlling the spark retarded as the car begins to lose speed ascending the grade.

An automobile was the first vehicle entered by M. Witte, the Russian peace envoy, and his colleague, Baron Rosen, on their arrival in New York. The accompanying engraving shows the two diplomats in an electric cab, about to leave the Hamburg-American line pier in Hoboken, N. J., where they landed. M. Witte is readily recognized by his great size; Baron Rosen is preparing to enjoy a cigar. It is well known that M. Witte is very favorably disposed toward automobiles; his present visit might prove to be an excellent opportunity to demonstrate to him the excellence of American cars, and for some wide-awake manufacturer to form a Russian connection that would lead to desirable results in the future. American cars are better suited to Russian roads than the more delicate constructions of the European shops.

An air-cooled motor makes a car essentially a high-gear machine. I do not mean by this that the car must be driven at a high rate of speed, but that the high-speed clutch must be used the greater part of the time. Cars of this type are generally designed with motors powerful enough to negotiate ordinary grades and get over sandy and rough roads without the use of the low-speed gears, and for the greater part have been designed without an intermediate speed in order to discourage the use of anything but the high-speed clutch.

(To be continued.)

FIRST THROUGH MICHIGAN WILDS.

Special Correspondence.

Gladstone, Mich., Aug. 5.—Austin Farrell, superintendent of the Pioneer Iron Company's furnace, and two friends comprised the party that has earned the distinction of being the first to make a trip across country from Lake Superior to Lake Michigan by automobile. The run from Marquette to Gladstone, a distance of sixty-five miles, the greater part of it through an unbroken wilderness and over roads that in stretches were akin to cow paths, was made in ten and one-half hours, or at the rate of six miles an hour. The automobile was a machine of 24 horsepower. Nearly one hour was spent in ascending a hill at the crossing of Whitefish river, while, for a distance of four miles, the road was impassible for the machine and it was necessary to make use of a team of horses. When the party reached Gladstone they were covered with mud from head to foot. The automobile was encased in a deep crust of red clay and dirt. It was the third attempt of Mr. Farrell to drive his machine from Marquette to Gladstone, both previous attempts having failed.

Fine Sport at Brighton (England) Meeting.

From Our Special Correspondent.

BRIGHTON, ENGLAND, July 22.—The biggest and most successful auto race meeting that has yet taken place in England was concluded this afternoon, after a four days' run. The Brighton Corporation, at great expense, laid out a mile and a half course along the sea front, and the races were organized to open this course in a fitting manner. The track itself is almost perfectly level, and for half of its length has a smooth macadam surface, the remaining portion being laid with a new dustless material known as "Tarmac."

The events catered for every description of motor bicycle and car, and in all more than 320 entries were received. Besides the usual classes for cars according to price, special events were arranged for cars of standard makes, and these races were particularly interesting.

On Wednesday morning a scratch race for standard 15-horsepower Darracq cars over a mile course brought out eight cars. The final was won by J. Kennedy. For some unknown reason the Automobile Club officials decided not to publish the times made in the touring car events, and thus robbed the whole affair of much of the interest. After a race for touring motorcycles with engines up to 3 horsepower, cars costing under £200 and carrying two passengers competed. An 8-horsepower Stanley steamer and an 8-horsepower Cadillac each won heats, and the Stanley survived till the final, where it was beaten by the English 8-horsepower Rover car. More than forty cars were entered for the next race, for four-seated cars, with price of chassis between £400 and £500. Of the fifteen entries in the first heat, two 15-horsepower Whites and a 30-horsepower Winton survived till the second round. Two 15-horsepower Darracqs—both entered by the same person— were left for the final, which was won by J. Keele. Cars costing £700 to £800 next showed their speed, and for the final were left a 24-horsepower Fiat a 28-horsepower Daimler, and a 35-horsepower Ariel, this last driven by a lady. The Daimler won by 4-5 of a second from the Ariel.

A mile scratch race for racing cars was the final event for the day, and three Mercedes, two Napiers, a 100-horsepower English Darracq, a 100-horsepower Rochet-Schneider, 90-horsepower Mors, and the Hon. C. S. Roll's 150-horsepower Dufaux turned out. The first round eliminated a Mercedes, a Napier and a Darracq. In the second round, Earp, on the six-cylinder Napier, beat Hutton's Mercedes, Earp's time being 45 seconds. The Mors took 56 2-5 seconds, beating the Dufaux, which had only two days before reached England and was running badly. Sir R. Gore's Mercedes beat the Rochet-Schneider in 54 3-5 seconds. In the final, Earp won in 47 3-5 seconds.

On Thursday the touring car races were continued. The 8-10-horsepower four-cylinder Humber won the £200 to £350 class, while in the next exent, with chassis price from £300 to £400, Mr. Lewis won on the new 16-horsepower Rover, the first of the type built. The race for cars from £500 to £600 was won by the 30-horsepower Darracq, while a 28-horsepower Daimler gained first prize in the £600 to £700 class Out of eleven cars which ran in the £800 to £900 class, no less than eight were 30-horsepower Daimlers, and that driven by P. Martin got first place.

Fine sport was witnessed in the motorcycle races, which followed. Ten riders competed, and ran in three heats over the mile from standing start. In addition, the times were taken on the latter portion of the course, so as to get the flying kilometer. Cissac, 12-horsepower two-cylinder Peugeot, won first heat, covering the mile in 53 1-5 seconds, and the kilometer in 27 2-5 seconds. Barnes and Collier, on English-built machines, won the other heats. In the final Cissac easily won, his time for the mile being 49 2-5 seconds, and for the kilometer 26 seconds. Afterwards H. Rignold, 12-horsepower Peugeot, covered the flying mile in 46 1-5 seconds.

The racing cars then ran over the course, the competitors being the same as on Wednesday. The semi-finals left Earp, six-cylinder Napier, who had beaten his opponent in 47 3-5 seconds, and J. Hutton, 120-horsepower Mercedes, the latter's time being 50 seconds.

The final proved very exciting. Hutton got away very well, but Earp lost about eighty yards when getting on to top speed—somehow a common fault with Earp. The Napier rushed down the track and was only beaten by a length at the finish. Hutton's time was 48 3-5 seconds.

Friday's racing opened with an event for standard 15-horsepower White steam cars, five turning up, and this was followed by a handicap race for members of the Ladies Automobile Club.

A race for standard 35-horsepower Daimlers followed, and finally a handicap sweepstake for cars which had run in the standard car events, was run off. In the final a 28-horsepower Daimler was matched against a 7-horsepower Panhard, the latter having no less than 2 minutes start. Although the Daimler ran fast, the Panhard came in an easy winner.

The racing cars then made an attack on the flying kilometer record. The eight cars were the same as on the previous days, except that in place of Mr. Brown's 80-horsepower Napier, Miss Dorothy Levitt (who will be remembered from her connection with English touring car reliability trials) drove S. F. Edge's 80-horsepower Napier.

Each car made three runs, and the average was taken. The 90-horsepower Mors averaged 30 1-5 seconds; Guiness' 100-horsepower Darracq, 25 1-5; Dorothy Levitt, 29 1-5; Hutton's, 120-horsepower Mercedes, 25 2-5; and Clifford Earp, 24 seconds. Earp won the challenge cup, and in his final run took only 23 seconds for the kilometer (97 1-2 miles an hour). This is English record for the distance.

The final day's racing was by far the most interesting of the meet. First event came the flying kilometer for the Autocar cup. Guiness, on the 100-horsepower Darracq, proved to be the winner, his average time for the three runs being 25 seconds, or just ninety miles an hour. Hutton's 120-horsepower Mercedes was second, in 28 1-5 seconds. Miss Levitt took fourth place.

A handicap sweepstake for all touring cars was won hy the 24-horsepower *Ger*-cars was won by the 24-horsepower Germain. A similar event for the racing cars Failure of gasoline supply cut out Guiness and left the lady to finish the course alone, her time being 57 2-5 seconds for the mile.

The meet came to a close with several exciting matches between racing cycles and cars. Guiness first ran his 100-horsepower Darracq over the kilometer from standing start with Rignold, on his 12-horsepower Peugeot. As the motorcyclist had to run to start his engine, he was obviously under a great disadvantage.; nevertheless, the car only beat Rignold by 4-5 second in 35 4-5 seconds. Hutton drove his 120-horsepower Mercedes against Cissac's 12-horsepower Peugeot, and, in spite of the startling difficulty, Cissac was only beaten by 2-5 of a second. To conclude the events, Earp made an attempt to break the kilometer record, but his six-cylinder Napier (the car Macdonald ran in Florida) could do no better than 23 seconds, which tied his English record performance of the day before.

France and the Vanderbilt Cup Race.

Special Correspondence.

PARIS, July 25.—Discussion still continues here as to what line of action France should pursue with regard to the Vanderbilt cup race. Four French firms, Richard-Brasier with two cars, Dietrich, Darracq and Renault, are qualified to compete in the great race next October, but it is not yet absolutely certain that they will start. M. Darracq, alone of this number, is quite convinced as to the necessary line of policy. In his opinion, France cannot do other than accept to run in the Vanderbilt race. Not only is he in favor of competing in the American event, but he is ready to run again in the Gordon Bennett race under existing conditions. He declares that, whatever the action of the club, he will certainly take advantage of his qualification to start in the Vanderbilt race, and will compete again in the Gordon Bennett race if it is possible to do so. In his opinion France should establish her Grand

ESPLANADE AT BRIGHTON IN SOUTH OF ENGLAND DURING THE RACES IN WHICH AMERICAN CARS COMPETED.

Prix, if thought advisable, but she should not decline to enter in other great races. Natural selection will soon show which of these events has to go to the wall.

M. Brasier is prepared to give implicit obedience to the Automobile Club of France. He has declared in an interview with the members of the press, that personally he would prefer to rest on his laurels. This, however, is a national rather than an individually commercial question, and the state of the industry still calls for speed tests. As a result of the Gordon Bennett race, he has already decided on the type of touring car which he will build for 1906. Should the French club decide to maintain its engagement, he is quite ready to send his two cars across the Atlantic. If, however, they decide not to compete for this "dangerous cup," he will give up his right to run without any ill-feeling, and will make preparations for the more equitable course announced for 1906.

The choice of the Vanderbilt cup circuit has not met with approval here. The Paris automobile journals are now putting forth the same arguments against the Long Island course as were set forth by Mr. Dinsmore in an interview with THE AUTOMOBILE representative, published on July 20. They declare that an outcry was raised against the Auvergne circuit because of its difficult nature; the Vanderbilt circuit, by reason of its shortness, its narrowness, and the large number of competitors will, however, be infinitely more dangerous than was the Gordon Bennett course. It will give an undue advantage to American constructors, who are specialists in track races and short distances.

William Hosmer has his automobile, which he recently purchased in Tampa, going full time.—*Tampa (Fla.) Tribune.*

Paris-to-the-Sea Fiasco.

Special Correspondence.

PARIS, July 24.—All Paris has been set laughing at the latest motor boat fiasco. The third Paris-to-the-Sea power boat race was on the programme for Saturday last. A daily automobile journal was responsible for the organization; the patronage of the President of the republic, of the minister of marine, of the Automobile Club of France, and of the French Maritime League, had all been secured. Fifty-four entries had been obtained, of which eleven were the fastest racers of the season. From Paris down the river to Havre large posters had been placarded to advise river craftsmen for the final were left a 24-horsepower Fiat, what steps to take in order to assure safety in the locks and on the river.

On the morning of the race a few thousand persons assembled at the starting point in the suburbs of Paris, just opposite the big De Dion-Bouton automobile factory. A grandstand had been erected; flags fluttered lazily in the morning breeze; the cannon had been charged, a trumpeter stood ready to give the preliminary signals, six official timers were prepared to do their duty, journalists and photographers were numerous, and a select company of leaders of automobilism occupied a position of honor. The crowd waited and passed their time reading the columns in the newspapers descriptive of this great power boat manifestation and studying the list of starters. At 9:45 none of the fifty-four competitors had put in an appearance, but this for a time did not cause much questioning on the part of the crowd.

At half past ten a preliminary gun was fired, announcing to the competitors that they must come down to the starting line. Instead of a fleet of fifty-four boats, and the deafening roar of numerous exhausts, three cruisers quietly took a position opposite the starter. The distinguished company looked round in wonderment—questions were asked on every hand, and the organizers ran up the river to see if the other craft had not been detained by the locks. There were, however, no laggards to be whipped in; the famous racers were nowhere to be seen, and a few minutes later the three cruisers went leisurely over the line on their journey to the sea. They were the *Gardener-Serpollet*, the *Mimi*, a cruiser bearing an 8-horsepower Prosper-Lambert motor, and the *Ricochet*, a small craft of 2 1-2-horsepower. A few miles up the river the *Gardener-Serpollet* was signalled by her owner to withdraw, and she returned to her garage; the 2 1-2-horsepower *Ricochet* disappeared, and the 8-horsepower *Mimi* was left a solitary competitor in the "international" aris-to-the-Sea race.

The promoters were in no way abashed. The little craft was ordered to continue the course, and it finished the run to the sea, winning all of the prizes offered for the great event.

A writer in a British automobile journal laments the "fact" that there are no successful motor-driven tire pumps on the market. Take a trip to the "States," Mr. Automan, and you can get all you want.

An automobile road map of southeastern Michigan has been published by Silas Farmer & Co., 31 Monroe Avenue, Detroit, Mich., showing, on a scale of quarter of an inch to the foot, practically all the roads in the territory covered. Highways, electric railways and steam railroads are distinguished by their markings. The map is of good size, and is printed on heavy cloth-backed paper.

Automobile Routes To, Through and Past Hudson, in New York State

By ROBERT BRUCE.

THE tour from New York City to Albany, N. Y., along the east side of the Hudson river, has become fairly well known to a large number of American autoists. In the main, it is a well-defined course—for the most part the old Albany Post road. This is claimed by some to be one thoroughfare from the toll bridge across the Hudson from Albany to Rensselaer all the way to Broadway, New York City, which would carry one, if desired, to the Battery.

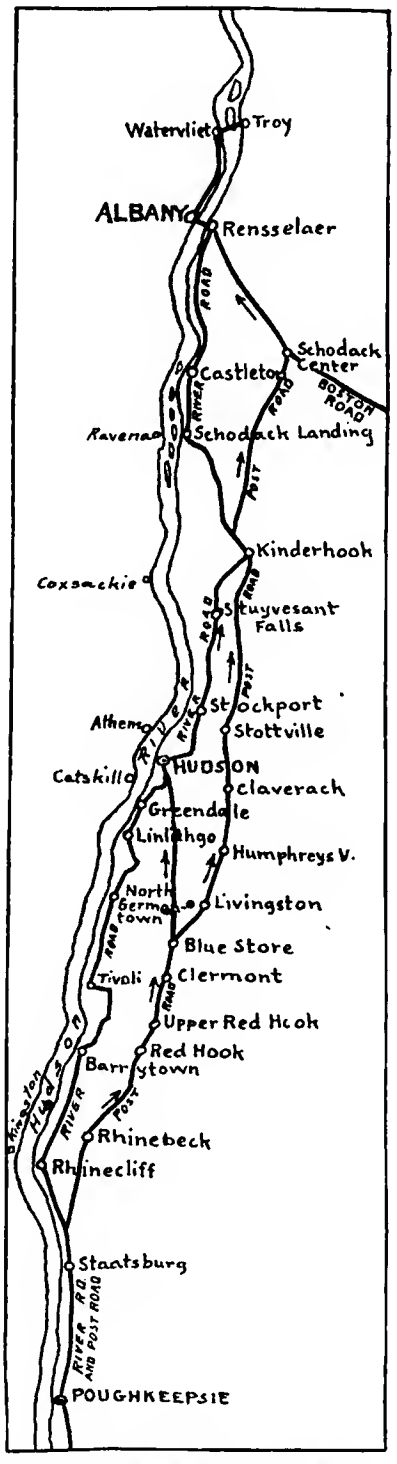
To the tourist actually making the trip over it, the Albany Post road is a more or less distinct line. But it is not entirely distinct, having innumerable branches and intersections all the way, together with windings through several of the towns and cities, where for the time being its identity is altogether lost. In such cases, the stranger, if without advance information, will find it necessary to make inquiries. At a few points, too, automobile travel forsakes for a time the Post road for newer and better ways, the most conspicuous instance of which is in the district near Hudson, N. Y.

At Blue Store, an ancient landmark impossible to mistake, situated about ten miles below Hudson, the tourist from New York, Poughkeepsie and intermediate points, usually bends left around the hotel for an up-run through open country. This intervening ten miles to Hudson is, in fact, an intermediate or middle route between the lower River road along the water front and the Post road, there being in all three separate thoroughfares over this portion of the run.

The Post road does not make this left bend at Blue Store, but continues straight ahead, passing, about ten miles above, through the village of Claverack, which is about three miles east of Hudson, on the line from Hudson to the Berkshire Hills. It would be entirely possible to keep the Post road right through from Blue Store to Claverack and Kinderhook, a few miles above Hudson, where the two thoroughfares again join, but automobile travel, as a rule, prefers to follow one of the two routes nearer the river.

A half hour's ride or so, after making the left bend at Blue Store, the driver will come into Worth avenue, Hudson, keeping same to left bend into Warren street, the principal thoroughfare downtown, reaching hotels and garages, the railway station and the ferry to Athens, N. Y. But a quick, through trip need only skirt the outer edge of the city, in which case the Public Square, bisected by the B. and A. railroad, is the turning point. This square is a short distance along Warren street after the left turn from Worth avenue.

If making a quick, through trip, simply turn right to pass alongside this park, then diagonally right into Green street. A short distance beyond, Green street makes a broad right turn, and almost immediately (at Bell Fountain, a local landmark) there is a short left turn into the road running



Routes from Poughkeepsie to Albany, New York State.

north. Take this, an unnamed country road, though a few rods of it are within the city limits, crossing the railroad a short distance above. Then take the next left fork (locally, the "lower road") which is the best way to the next town, Stockport.

A still shorter cut through the outer edge of Hudson is shown in the accompanying drawing. Make right turn from Worth avenue to Prospect avenue, and another right bend into the Union turnpike. Thence left turn almost at once to short connecting street into the northward road, as above. This short cut, while entirely practicable, is likely to take the stranger more time to make than the longer one given via the Public Square.

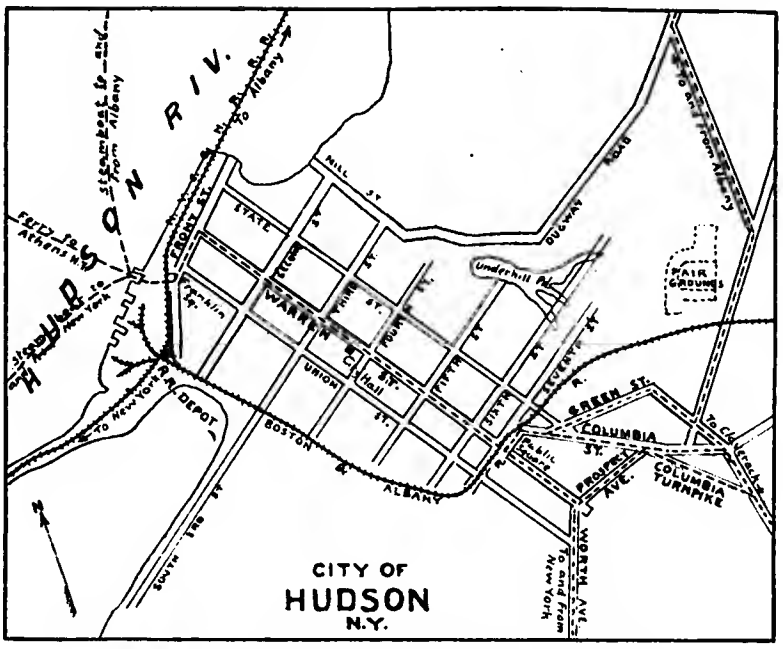
The drawing also shows the local route from the Hudson river water front, where the up and down boats and the trans-Hudson ferry land, through the city of Hudson, to the outer edge, where different routes extend in the three directions most likely to be taken. The directions are as follows: Keep straight ahead from either dock, up short grade, over New York Central railroad tracks, making left turn where trolley is met. Keep with trolley up very steep grade, on Front street, to meeting with Warren street; here make square right turn to and through the central part of the city.

Bound north, toward Kinderhook and Albany, keep Warren street to the Public Square, making left bend to the northward road toward Albany, as given on the map. If bound toward Poughkeepsie, N. Y., and intermediate points, bend right from Warren street into Worth avenue, and on into the road through open country to Blue Store. Here a right bend will put the tourist again on the through road to New York.

Bound from the same water front to Claverack, Great Barrington, Lenox, Pittsfield and other Berkshire Hills points, keep Warren street as before to the Public Square. Cross the railroad tracks and turn left along the further side of square, then diagonally right into Green street. This street makes a broad right bend, passing two cross-roads (the northward road to Albany and the Union turnpike) and merges with the Columbia turnpike direct to Claverack. Thence on to Great Barrington, Lenox, Pittsfield and other Berkshire Hills points.

Though not as good motoring, it is possible on the up-river trip to turn down to the river at a point about three miles above Staatsburg, following the river road through Rhinecliff, Barrytown, Germantown, Catskill Station (Greendale, on New York Central railroad) to Hudson. This route encounters two bad hills entering Hudson—one up and one down, but one who elects to follow it will see the river over this portion of the route, which is altogether avoided by the Post road. It comes into South Third street, Hudson, and keeps the same to Warren street, where it makes left turn to the river front or right turn to the Public Square.

Northbound, it is possible to leave Hudson by Fourth and Carroll streets, but the roads are never as good as the other way,



SKETCH MAP OF ROUTES IN THE PUZZLE CITY OF HUDSON, N. Y.

via the Public Square, first given. What is given prominently on the city map of Hudson as the "Dugway" appears to be a direct northward connection from the city via Second and Mill streets, but the "Dugway" is not suitable for automobiles, being only a lane.

The Albany road north of Hudson enters Stockport, the next town; keep same, and on through Stuyvesant Falls to Kinderhook. At center of town, Kinderhook, the Post road joins, the tourist not having been on it since leaving Blue Store, ten miles below Hudson. This does not amount to anything unless a stranger, southbound, might ask a resident of Kinderhook for the "Post road," meaning the thoroughfare usually traveled to Hudson, in which case the reply would probably lead the autoist astray.

After making the left turn at Kinderhook for the north, however, it is the old Post road all the way through Schodack Center, and, crossing the toll bridge, to Albany. At no other point on the up-trip from New York is the Post road left for as long a distance as in this section, though automobile travel has found a number of locally better ways to cover portions of the route further down.

Ardsley Covered Car.

An exceedingly handsome car with a luxurious enclosed body has recently been delivered by the Ardsley Motor Car Co., of Yonkers, N. Y. The chassis is the standard Ardsley chassis with four-cylinder vertical motor of 30-35-horsepower; while the body, which is of special design, was built by Cole & Woop, of New York. A canopy top extends over both front and rear seats, and the tonneau seat is enclosed by a hood that, while having the appearance of permanency may be folded back when not required. When the hood is to be folded, the side windows are dropped into pockets in the side doors, and the large front window, which extends across the front of the enclosed portion of the car, may be left in position, if desired, when it acts as a wind-break, or may be moved out of the way. The windows slide in brass grooves, and are so fitted as to be weather-proof when raised. All the "irons" used are hand forgings of steel, hand finished, brass plated and polished. All the windows are fitted with rolling curtains.

An ingenious "wrinkle," and one that serves a useful purpose is a leather guard stretched from the inner edge of the front mud-guard to the outer edge of the frame of the car, filling in the space between the mud-guard and the car, through which mud and dirt usually fly and accumulate on the hood and other portions of the front of the car.

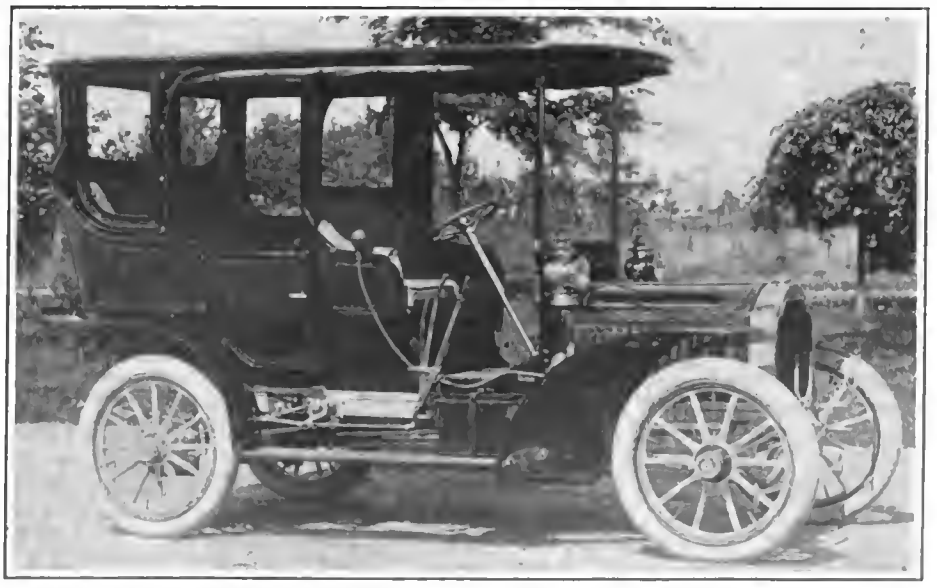
The car is finished in black, with black leather upholstering, and the general effect, while quiet, is rich and luxurious. Long springs, long wheelbase and large tires make the car an easy riding vehicle, and the exceedingly quiet running of the motor, added to the other features, completes a machine that seems to possess every comfort and convenience.

Packard Enclosed Car.

The Packard car illustrated herewith is the result of the working out of the ideas of a customer of the Packard Motor Car Co., of Detroit, Mich. The machine, which the makers call "semi-limousine," was built for Clifford Elliott, of Detroit, whose ideas governed the designing of the body.

A standard Packard model N chassis is used. In place of the usual type of limousine side door, there is simply a wide open space through which the air can blow freely. In case of bad weather, however, all openings can be closed by means of plate glass windows and rolling curtains, the windows swinging to the roof, out of the way, when not wanted. With all windows and curtains open, the car is practically an open one with canopy top; while the closing of windows and curtains thoroughly protects the passengers from rain and wind, making the car available for winter as well as for summer use.

One of the early types of gas engine had a heavy piston which rose freely when the explosion occurred on the up-stroke, being disconnected automatically from the crank-shaft; but on the down-stroke it automatically engaged with a driving mechanism, and the contraction of the gases, brought about by means of a water jacket, furnished the power. This engine is said to have produced a horsepower per hour on about 45 cubic feet of gas, about one-third that used by other gas engines of the period.



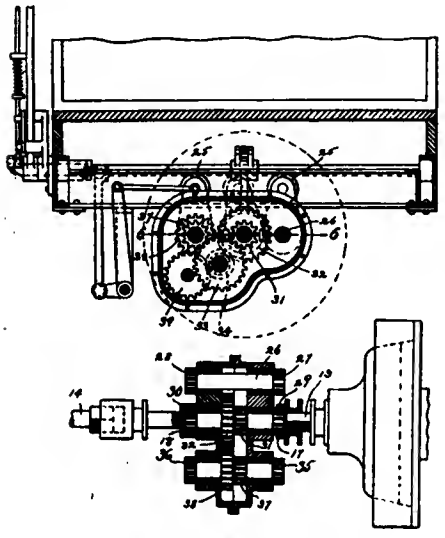
SEMI-ENCLOSED PACKARD TOURING CAR WITH BODY FROM CUSTOMER'S DESIGN.

Patents

Speed Change Gear.

No. 795,479.—H. H. Buffum, of Abington, Mass.

This gear differs considerably from the conventional type of speed-change gear in several ways. The gears are always in mesh, and there are no individual clutches employed. Instead, the gear case is shifted bodily to engage one or another set of gears through separate positive clutches, in the manner to be shown. The gear case is supported by the rollers *25*, which run between guides and bring the axes of one or another of the three shafts on the line *6 6* into line with the clutch and propeller shafts *13* and *14*, according to which gear is desired. In the lower view, which shows a horizontal section on line *6 6*, may be seen



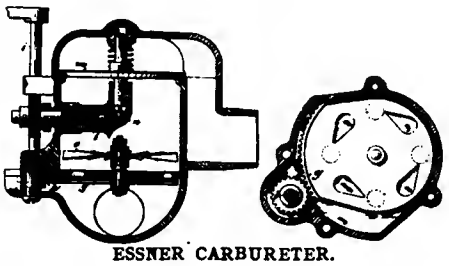
BUFFUM CHANGE SPEED GEAR.

the character of the couplings, which are simply spur pinions *27, 28, 29, 30, 35* and *36*, which engage internal gears *17* and *18*, the latter being shifted axially by suitable levers to disengage them from the clutch pinion when a change of gear is to be made. Pinions *27 28* are connected by the solid shaft *26* for the direct drive. From *29* the drive is through gears *31, 33, 34* and *32*, thus giving the low speed. For the reverse the drive is from *37* through *33, 34* and *39*, to *38*. The operating mechanism shown consists of a side lever for shifting the gear case, attached to the handle of which is a small lever like the ordinary latch lever, but requiring much more force to operate it. This small lever acts to retract the internal gears *17 18* for the purpose of shifting.

Carbureter.

No. 795,273.—L. A. Essner, of Princess Bay, New York.

A carbureter in which the inventor appears to have endeavored to combine the principles of most preceding forms of carbureter. The air enters the base and passes up through the apertures in the throttle *g*, which is rotated by the pinion *h*, connected to the stem *i*. The light valve *m* is lifted by the air stream, thereby opening the needle valve *n*, and allowing gasoline to drop as shown on the blades of the fan *o*, whose revolving is supposed to distribute



ESSNER CARBURETER.

the gasoline. The screw regulating valve *l* is operated by spiral pinion connection with the same stem *i*, so that it and the throttle work together.

Steering Gear.

No. 794,716.—J. E. Kimble, of Vicksburg, Mich.

A reducing gear comprising a sprocket pinion and wheel connected by a sprocket chain, with the pinion attached to the shaft of the steering cover. From the sprocket wheel a link is connected to the steering knuckles.

Controlling Mechanism for Motor Cycles.

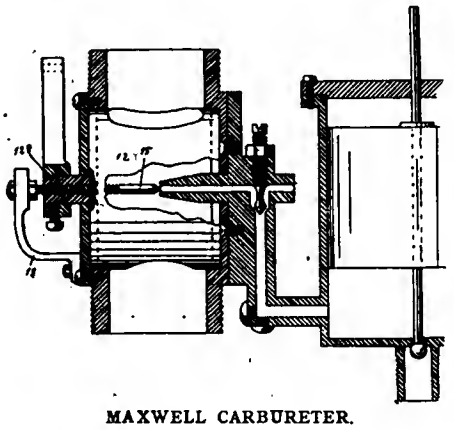
No. 794,727.—J. F. Merkel, of Milwaukee, Wis.

A device acting on the spark timer and exhaust valve cam to facilitate starting by holding the exhause valve open; also to vary the spark time, and to accomplish both these results by the manipulation of a single lever.

Carbureter.

No. 795,357.—H. B. Maxwell, of Rome, New York.

In this carbureter the throttle *12* takes



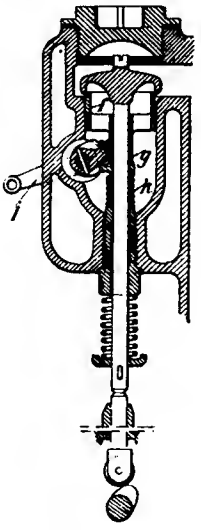
MAXWELL CARBURETER.

the form of a barrel with openings above and below the needle valve. The effect of this is, of course, to increase the intensity of suction at the spray nozzle when the throttle is partly closed, and to offset this the spray nozzle is partly closed by the needle valve *15*, which is threaded into the hub *12a* of the throttle, and is held against rotation by the lock nuts at its end. These lock nuts engage a spring bracket *18*, which yields sufficiently to allow longitudinal movement of the needle valve.

Throttling Inlet Valve.

No. 794,859.—A Gossé, of Petit-Bourg, France.

An ingenious modification of the ordinary mechanically opened inlet valve, by which its effective lift may be varied at will without change in the actual lift as determined by the cam. As shown, the device consists essentially of a piston throttling valve *f*, attached to a sleeve *g*, and sliding within the gas passage in such a way that it can be raised to slip inside the edge of the inlet valve, which is turned downward to permit



GOSSE THROTTLING INLET VALVE.

this. A spring *k* may be provided to steady the movement of the valve and prevent fluttering, and the lever *j*, by which the valve is operated, may be connected to any convenient mechanism within reach of the operator, as, for instance, a lever on top of the steering wheel.

Muffler.

No. 794,926.—B. Crawford, of Auckland, New Zealand.

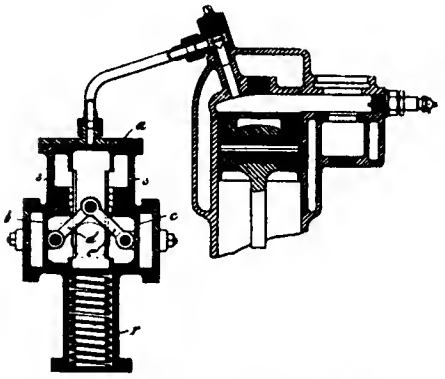
A muffler having the form of a cylindrical drum inside of which is a spiral partition compelling the exhaust gases entering at the outer end of spiral to travel around to the inner end of the same. They escape gradually meanwhile, through small perforations in the heads of the drum.

Power Air Pump for Tires.

No. 795,531.—A. Michelin, of Paris, France.

A pump operated by the explosion pressure from the motor and comprising a power cylinder and piston *a*, a pair of air-com-

pressing cylinders and pistons *b*, a pair of toggles *d e* conecting the latter to the air plunger, and a buffer or cushion spring *r*, for the purpose of bringing *a* to rest at the



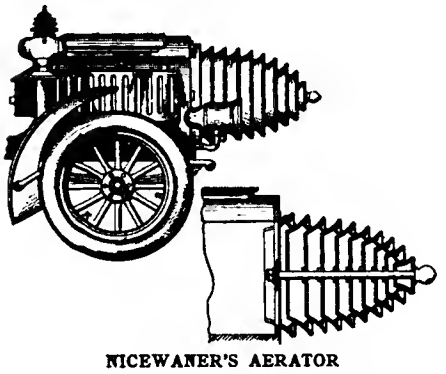
MICHELIN POWER TIRE PUMP

end of its movement. The purpose of the toggle conection is to increase the force available in proportion as the air is compressed, thus producing an easy instead of a jerky movement. The toggles *d e* are straight in line at the end of the stroke, and if *a* overruns it does no harm. Small outlets *s s* relieve the pressure in the bottom cylinder just before the end of the stroke.

"Attachment" for Automobiles.

No. 795,054.—E. G. Nicewaner, of Pittsburgh, Pa.

A simple and artistic device to be attached in front of the bonnet of an automobile and designed by the inventor to combine beauty and utility. In the former direction its success is immediately self evident, while as to its utility it may be explained that it is not intended for a spring buffer, as might hastily be supposed, but is in reality a sort of multiplying wind scoop. It consists, as the sectional view shows, of a series of truncated funnels, nested within each other a short distance apart. The inventor's assumption being that when thus used they



NICEWANER'S AERATOR

direct a more powerful draft upon the radiator or motor than if, say, the largest funnel were used alone without the others. It is called by the inventor an "aerator."

A. D. Henderson is putting up an automobile. This is about the third one for him to put up. Hurrah for Arthur!—*Griffin (Ga.) News and Sun.*

Moths Ride in Autos.

If you see an automobile from Massachusetts coming toward you, flee as from plague. It may bear the terrible arrows of the brown-tailed moth, beside which the sting of the Maryland mosquito is a plaything and the barbs of cow itch are a soothing lotion, says a humorous writer in the New York *Sun*.

Until now the Moth Brothers, gypsy and brown-tailed, have performed exclusively on the stage of Massachusetts, so far as America is concerned. The Massachusetts mothologists have found a European fly which delights to devour the gypsy. Dr. Howard, bug master of the United States Department of Agriculture, is scouring Europe for insects which will put the comether on both gypsy and brown-tail. He is going to bring home a shipload if he can hire them, turn them out at Cape Cod and tell them to go as far as they like.

Everyone knows about the gypsy moth and how it was set loose by a careless scientific person. The brown-tail leads even a faster life. Five years ago it swooped down upon the sacred villages of Malden, Medford (where the Demon Rum has just gone on vacation) and Everett. It skipped from tree to tree, laying eggs recklessly. Now few of Boston's suburbs are free from the brown-tail, which vies with the gypsy in killing trees.

'Tis a vicious beast, the brown-tail moth. It attacks those who would destroy its happy home. The caterpillars, which hatch out early in the spring and again late in August, have stiff, many-pronged hairs loosely attached to them. Along Beacon street it is said of the caterpillars, as has been said of the porcupine, that they can fire these hairs at the foe with unerring aim. At any rate, the hairs get loose, and woe betide those upon whom they land. They fall upon faces, arms and necks, and Gen. Agony follows them.

"The rash itself," says the *Medical News*, which has been investigating the pest, "is usually localized in the form of many discrete papules, intensely painful and itching, lasting from one to two weeks. Some cases are reported from Newton where the eruption was general, the eyes closed, and hospital treatment necessary."

It has been alleged that the arrows of the brown-tail pehetrate the thickest clothing, causing pain where the victim least expects it. This may be so, but it is more likely that such a condition can be accounted for by the wonderful sagacity of the caterpillar. When his enemies are not looking he goes to the back yards of the best families and uses the clothes drying on the line for target practice. Two arrows for a sock, three for an undershirt, four for whatyoucallems, and the fiend's work is done. Ironing does not destroy the barb. It lies in wait for the wearer of the garment and plunges itself into his hide with the accuracy of a torpedo.

The victim screams, scratches and swears, but all in vain. Two weeks must elapse before he is rid of the rash, and by that time the brown-tail may have loaded the wash-line again.

Scientific persons believe that the brown-tail has heard about Dr. Howard's errand in Europe and is making desperate attempts to leave Massachusetts. There is one handy way to accomplish this, and that is by way of the automobiles which throng the roads of that State. A moth flies to a limb just over the road, waits until a red devil comes along, and then drops on it. If he is yet a caterpillar, he climbs the tree, and though the process is slower, gets there just the same.

Many of the automobilists are on their way to New York, and they bring the caterpillar and his arrows with them. Next day they go to the doctor, not being sure whether they have scarlet fever or smallpox. The caterpillar goes his way, becomes a moth, and the moth lays eggs, and so on indefinitely.

It is a scientific fact that the moth has spread in every direction from its old home as far as an automobile can run in a day. Whether it has a foothold in New York is not yet certain, but it is very probable.

Perhaps the time will come when every automobile from the moth district will be held up and quarantined on the Pelham road.

English Channel Boat Races.

Special Correspondence.

BOULOGNE-SUR-MER, July 16.—The motor boat race across the English Channel, from Boulogne to Folkestone and back, has not proved itself an unqualified success. Seven racers and twelve cruisers were sent away at 9:25 ocer the 51 nautical miles course. Only two of the racers and four of the cruisers finished, *La Rapiere* winning in the former class in 2:25:50, with *Napier* second in 2:27:04.

The *Mercedes-Charley* took the lead at the start and held it until more than halfway across, when it had to abandon the race owing to water having been shipped into the long, open cockpit. Baron de Caters, who was piloting the boat, was thus forced to allow himself to be towed into Calais. The *Palaisoto*, steered by Henry Farman, was the first to round the mark boat at Folkestone, but soon after had to abandon the race and was towed into port. *La Rapiere* and the two Napiers went round soon afterward. When the French coast was sighted Macdonald, who was steering the *Napier II.*, pushed his boat at still higher speed in an effort to cross the finish line ahead of *La Rapiere*. However, when at the finish, he made a mistake, and instead of crossing the line he went into the harbor. *La Rapier* was fitted with the 100-horsepower motor used in Teste's car, which came second in the Ardennes circuit and first in the Brescia circuit last year.

THE AUTOMOBILE

VOL. XIII. No. 6

Published every Thursday by

THE CLASS JOURNAL CO.,

Flatiron Building, Madison Square,

NEW YORK CITY.

Cable Address - - - - Autoland, New York
Long Distance Telephone - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2.00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 5 o'clock p. m. Monday for the issue of Thursday following.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies Printed in 1904, - - -	**639,300**
" " **This Issue, - -**	**13,500**
" " **Since Jan. 1, -**	**447,000**

Development of Commercial Vehicles. Many persons outside the industry have wondered at and commented upon the fact that automobile manufacturers have given comparatively little attention to the development of the self-propelled commercial or business vehicle during recent years, but have concentrated their capital and best efforts upon the production of high-class pleasure vehicles. Such observers have taken note of the vast possibilities for the commercial vehicle, and in their mind's eye can see the time not many years ahead when horses will be barred from the business streets of large cities. What they cannot see, however, is the manufacturing and financial difficulties that have confronted the automobile builder.

In the nature of things, the pleasure automobile had to be developed and brought to a state of practical utility before the business vehicle. In their pleasure seeking, people do not attempt to make a profit on their investments, and economy of operation and maintenance often cuts little figure with the wealthy purchaser of an automobile; even his less fortunate neighbor, who can afford only a runabout or low-priced touring car, does not expect to effect a "saving" by the use of his machine—he gets his return in the form of enjoyment and good health. Not so with the man engaged in business. Before he can be induced to change his delivery or transfer system from horses to motor vehicles he must be convinced not only that the automobile delivery wagons or trucks will do the work more quickly and satisfactorily, but that they will do it at less, or at least no greater, annual expense, and with no inconvenient interruptions due to the vehicles being laid up for repairs.

Therefore, the manufacturers turned their attention to that line of work in which the purchaser was willing to stand the expense of bringing the cars to practical perfection. Now that this has been accomplished, and the reliability and efficiency of the pleasure vehicle has been so well demonstrated, more attention is being turned to that other branch of the industry in which many see the brightest future of the automobile. The results of this attention and work are presented in the preceding pages of this issue, wherein are described and illustrated leading makes and types of American commercial vehicles of to-day.

That the development and growth will be more rapid from this time on is generally expected in the trade. The tendency extends as well to France and England. The former country has awakened from her self-complacency over her leadership in the building of fine pleasure vehicles to save herself from being outdistanced in the production and sale of business vehicles of all types. The week's trials of business cars just held by the Automobile Club of France show how much alive the manufacturers now are to the possibilities. England has long led all nations in the building and use of very heavy steam trucks, known there as "lorries," and now London has a large number of gasoline omnibuses operating on regular routes, and is fast adding to their number. These are of the double-deck type, and have proved superior in every way to the old horse-drawn 'buses, and more economical. European countries also are eager to adapt power vehicles to military service.

Development in the United States has been along different lines. Beginning with the light steam delivery wagon, we have passed to the light electric and gasoline delivery wagons, and have developed successful trucks of both powers capable of transporting loads of five, six, or seven tons. Not much success has attended our experiments in the steam truck line, unless it be in the heavy traction engines, but we are developing a type of gasoline passenger coach for use on railroad tracks that promises much in the future.

✱

Glidden Touring Trophy Award. There is bound to be some disappointment over the awarding of any prize in a competitive event, and the closer the finish of the contest the greater will be the heartburning. So in the Glidden tour, the hope entertained by half a dozen entrants whose cars made clean scores is dashed to earth by the announcement of the Tour Commission. Nevertheless, the award of the handsome big silver pedestal, surmounted by the enameled globe in variegated colors, to Mr. PERCY P. PIERCE will be acknowledged by all who have participated in the tour to have been well made and well merited. By maintaining a leisurely pace with his powerful touring car, starting at a comfortable hour each morning, stopping each day for luncheon, and arriving with his party at each day's destination looking fresh, clean and happy, he observed to the full the intent of the donor of the trophy. Others did so, too, but it is evident from the votes cast by the contestants themselves that the delightful tour which this particular party made had not escaped general observation. The award will therefore give as much satisfaction as it would be possible to afford, and Mr. PIERCE will be the recipient of ungrudging congratulations upon his success.

Now that the Commission has finished its work of awarding the trophy and the certificates, its publication of the data secured on the tour will be awaited with the keenest interest. Automobiling having reached the stage where mechanical and tire repairs and replacements have been reduced to reasonable figures, economy of fuel and lubricating oil consumption is of next importance. So much data as is in the hands of the Commission will be of the greatest value to designers, builders and users. The inference that this data is not entirely reliable, which is to be drawn from the suggestion of the Commission of 1905 to the Commission for next year's tour, yet to be named, that official observers be appointed, and from the seeming reluctance to give the information to the technical press, does a certain injustice to those contestants who took pains to make careful and accurate records of their daily runs. Publication of the data with whatever inaccuracies it may contain will be of great value, and will tend toward the elimination of similar discrepancies in future tours and economy tests.

✱

Automobiles vs. Horse-Drawn Vehicles. Comparison of the pleasure automobile with the horse-drawn vehicle in amount of work that it will do in a given time, and the degree of pleasure that can be derived from its proper use, is really without technical value, since it is impossible to draw a close comparison between means of locomotion of such widely different character and capabilities. The necessity for making comparison with something exists, however, and the horse-drawn carriage is the only vehicle built for use on the public highways that is at all comparable with the automobile and with which all persons are familiar; so we have in automobile affairs the constantly recurring allusion to the work of horse-drawn vehicles.

The absurdity of the comparison was partially shown in the Letter Box Department of this paper for July 27, where a correspondent gave the schedules for two livery rig drives through the Catskills, one of two days, covering a total distance of fifty-six miles, and another of three days, over a

distance of seventy-six miles. These were "standard" drives, for which schedules and routes are regularly published by railroads, hotels and steamship lines. An automobilist with a touring car would laugh to scorn such a schedule, and the owner of a runabout would expect to cover the total distances mentioned, even over the mountain roads, in a comfortable half day's run for the shorter distance and in six or seven hours moderate riding for the longer trip.

No better example of the work that an automobile will do, day in and day out, has been offered than that of the Glidden tour. In this event twenty-six machines, ranging in size from a two-passenger, 8-horsepower runabout to a 45-horsepower, five-passenger touring car, and in price from $750 to $6,000, traveled a total distance of 870 miles in eight days, making each half of the trip in four consecutive days. The longest and hardest day's run of all was the last, from Lenox, Mass., to New York City, 145 miles. The twenty-six cars started between 6 and 7 o'clock in the morning, and a number of them arrived at Yonkers, 125 miles, between 1 and 2 P. M. After seven or eight hours' running over a surprising variety of roads, some of which were as steep, rough and crooked as one is likely to encounter in any settled part of the country, no less than eighteen of the cars reached Yonkers by 4 P. M.

Obviously, the only mode of transportation with which the automobile can sensibly be compared is the railroad train, in luxury of travel as well as in speed and endurance; and it will not be forgotten that on the Pittsburg endurance run of 1903 the competing automobiles got through over the wagon roads to their destination each day when the railroad trains were blocked for several days by one of the worst storms in years.

Automobiling has now reached the point where the low cost of traveling excites as much interest as the ability to finish a long tour on schedule time. The consumption of gasoline on the Glidden tour was from seven to eleven gallons per day by each car, averaging approximately fifteen miles to the gallon. At twenty cents a gallon this amounted to 1 1-3 cents a mile. Add to this 1 1-2 quarts of lubricating oil per day, at twenty cents a quart, or 1-4 cent a mile, and it will be seen that the operating cost was but slightly more than 1 1-2 cents a mile, for from two to five persons.

Operative cost is of insignificant moment, however, as compared with the wonderful independence of railroads and street cars that ownership of an automobile confers. To be able to step into a machine at the office door on a Saturday afternoon, and after a refreshing drive of four or five hours through attractive rural scenery find oneself at a country house or a good hotel in the heart of a cool mountain retreat in time for dinner, to be succeeded by a restful Sunday far from the heat and noise of town—such is the real secret of the sudden popularity of the automobile with the city man.

Autophobia Rampant in Illinois.

Violent Measures Adopted to Enforce Village Regulations—Chicago Club to Fight Restrictions.

Special Correspondence.

CHICAGO, Aug. 5.—Classic Evanston, the north-shore suburb of Chicago, just now is the storm center of the autophobia which has stirred the Chicago metropolitan district for at least a year. The village of Glencoe, near neighbor to Evanston, is vieing with its more cultured and larger village rival, while Winnetka, also in the north-shore string of small municipalities, is a pretentious third in its restricting sentiments against the automobile.

Against all of which the Chicago Automobile Club stands at bay, determined to fight all strictures through the courts to a definite and satisfactory finish if the higher courts of Illinois shall rule against the class legislation which the automobile owners and drivers feel has been directed at them.

Along this north-shore line of suburban towns the automobilists of Chicago always have found the most inviting stretch of roadways, with the greatest variety of woods, hills, meadows and lake shore stretches pleasing to the eye. But the north-shore towns have been hard to placate in their animosities toward the automobile. Always they have seemed to vie with one another in restrictive legislation as to the speed of the machines, the tooting of horns and the ringing of bells. Recently Evanston became possessed of a new chief of police, of military disposition, and on July 26 the storm broke when, under the instructions of the military chief, Patrolman Johnston fired two shots at a machine which had refused to stop when the stop-watches of the road guards showed an alleged speed of twenty-eight miles an hour.

The first shot from the revolver punctured a front tire and brought the machine up with a sharp turn at the curbstone, while a second shot smashed the side of the tonneau, in which were Mr. and Mrs. R. H. Courtwright, of Chicago, sitting behind Chauffeur William Walsh. Evanston's chief of police at once took up the praises of his officer, who is known as a crack shot, while most owners and operators of machines came out in protests of various forms against any police officer who, because of a mere misdemeanor, would risk revolver bullets in stopping the misdemeanant.

Glencoe seemed to have been waiting for a sympathetic overt act of some kind, and a few nights later its village council met and passed an ordinance prescribing a process of "bumping the bumps" for any automobile or other vehicle which hereafter shall traverse the length of the town. The scheme is to build in the streets at 100-yard intervals a cement obstruction, six inches high at the apex, with approaches from the level two feet in length, the object being to make any considerable speed in the roadways not only unpleasant, but dangerous.

Winnetka followed upon this measure with an ordinance stipulating anything above five miles an hour to be an infringement of the rights of its citizen on foot, or who might be in carriages traveling at twelve or fifteen miles an hour.

And at Highland Park, where the government reservation of Fort Sheridan shows its frowning gates, the commanding colonel, acting upon the initiative of the Evanston chief of police, has decreed that any visiting automobile exceeding the ten-mile limit shall be fired upon by the guards with intent to wreck the tires, front and back, if need be.

Then, scarcely more than incidental to all of this, the Lincoln Park commissioners in Chicago have closed nearly all the road ways of the park to any automobile of any description, moving at any snail's pace possible to the mechanism of the machine.

Through Attorney S. S. Gorham the Automobile Club of Chicago stepped into the fight at this point. A dozen members of the club, while backing him, also came up to the head of the Chicago police force to volunteer as special policemen without power to fire upon speeding machines, ye ready and anxious to co-operate with his forces against all speed violators within the city limits.

Policeman Johnston in the meantime was arrested on a State warrant, to be prosecuted by the club and the owner of the damaged automobile.

Attorney Gorham addressed a communication to the Lincoln Park commissioners, demanding that roadways open to carriages also should be opened to automobiles.

Glencoe took up the work of planning for the "bump the bumps" shutes in its thoroughfares, and is still planning. And Winnetka's five-mile-an-hour schedule is in full force and effect.

As to the proposition to make special policemen of a dozen members of the Chicago Automobile Club, it has been discovered that according to the law a special policeman can be appointed for a fixed and defined special territory only.

The Lincoln Park commissioners so far have ignored the demands of Attorney Gorham for the equal rights of all pleasure vehicles to all roadways in the park.

When Glencoe shall begin to put in its special obstructions in the streets and roadways of the village the Chicago Automobile Club's attorney immediately will make application for a writ of injunction, which, it is believed, will issue from any court in the county. Then whether Winnetka's snail's pace for automobiles is reasonable and in accord with public policy will come up for decision by the higher courts.

Ex-President John Farson, of the Chicago Automobile Club, is a leader in the actions of the club against what he terms "sixteenth century measures" for control of the automobile.

"Glencoe is four hundred years behind the times in its absurd ordinance," says Mr. Farson. "Evanston is even worse in firing upon machines which, at the worst, merely have violated a city ordinance. The Chicago Automobile Club is not in sympathy with lawbreaking of any kind, but it has the opinion of the second highest court of Illinois that the streets are for all of the people and for all vehicles of common transportation. We shall fight to the court of last resort to discover what is the law. When the powers of the law are defined and legal enactments are made under them the decent owners of machines will abide by these statutes. But 'we want to know.'"

Among attorneys sentiment is divided upon the proposition of firing upon machines that will not stop when challenged. But that an injunction will restrain the Glencoe bump building is agreed upon as certain.

NEW TRADEMARK LAW.

Provisions Upheld by Court of Appeals—Applications Under Old Law Void.

Special Correspondence.

WASHINGTON, D. C., Aug. 5.—The Court of Appeals of the District of Columbia has sustained a comprehensive decision of the Commissioner of Patents which is of the utmost importance to trademark owners. It is the first important decision under the new trademark law enacted during the last session of Congress, and holds, in effect, that a large class of applications under the old trademark law of 1881, which have been assumed to be still pending in the Patent Office, although adversely acted upon, cannot be further considered under the new law, but must be treated as finally rejected under the old statute. The court's decision further holds that they can be revived only by the filing of new applications under the present law.

At the Patent office it was stated that "applicants whose cases come within the scope of this decision will be put to a considerable expense, as they will be obliged to begin proceedings afresh, and again pay all fees provided by the statute. The rights of such trademark owners, however, are not prejudiced by the decision, but, on the contrary, it is probable that in many cases trademarks rejected under the old law will be found to be registerable under the new statute."

It is understood that several hundred applications now before the Patent Office will be finally rejected under the decision, but doubtless many of them will be revived by the filing of new applications in conformity with the provisions of the new act.

TROUBLE IN GRAND RAPIDS.

Automobile Club Retaliates for Alleged Unwarranted Arrests.

Special Correspondence.

GRAND RAPIDS, MICH., Aug. 5.—The fight between the automobilists and the board of police and fire commissioners of this city, as a result of continued arrests of the former for alleged violations of the city automobile ordinance, has developed into a bitter war.

The automobile club has appointed a committee, consisting of Dr. Perry Schurtz, president of the club, Dr. Henry Hulst and Dr. E. H. Eddy, and this committee has secured evidence of Sunday law violations which they declare will be pushed. They have already caused the arrest of four hotel keepers on charges of keeping their hotel bars open on Sunday. The men are now awaiting trial.

The committee states that they simply wish to show the people that they are not the only violators of the law in the city and that they have secured evidence against others. The board has taken no official action, and members refuse to make any statements. The committee has submitted to the board a communication in which it is stated that proof has been secured against numerous law breakers in the city. This proof has been offered to the board.

L. W. Welch, secretary of the automobile club, expressed himself as dissatisfied with the methods pursued by the committee, and has resigned his portfolio. In regard to this Dr. Schurtz states that he expected a number of deserters, but that the majority of the members of the club have promised to stand by him, and that the fight will be waged to the end and that the club will prove to the board that they are being discriminated against.

An incident that fanned the flame of discontent among local automobilists happened when Bicycle Officer Dunn stopped a touring car driven by William Doughty, and placed the driver under arrest for fast driving. In the car at the time were Frank Leonard, his wife, son and daughter. The machine was stopped on street car tracks and was struck by a car, being practically wrecked. Doughty was thrown over on the front of the machine, sustaining serious injuries, and is now under the care of a physician.

The driver states that the machine was struck by the car because the officer refused to allow him to move it off of the track. In this he is corroborated hy young Leonard, who was riding in front with him when the accident occurred.

According to Mrs. Leonard, the car was going slowly and was not exceeding the legal rate of speed. George W. Hart, of the firm of Adams & Hart, owners of the machine, is very indignant, and a suit may be brought against the city to recover the amount of damages.

The automobilists are up in arms over this latest incident, and the trouble may result in the complete closing of all stores, theatres, and even peanut stands, in the city on Sundays.

FIGHTING PARK REGULATIONS.

Special Correspondence.

SAN FRANCISCO, Aug. 1.—The automobile livery interests of this city have begun a fight to wipe out the ordinance of the Park Commissioners which closes Golden Gate Park to automobiles after eleven o'clock at night. A driver for one of the livery companies was arrested by arrangement a few nights ago, and the matter will be fought through the courts. Subscriptions are being asked from the dealers for the purpose of testing the law, but as yet there has been no response except from those who are interested in the livery business.

The Automobile Club of California is behind the Commissioners, and will oppose any effort to nullify the ordinance.

The principal hardship through the ordinance comes to those who rent cars for the Tenderloin trade in the late night and early morning hours. The Park Commission, which has always been very conservative with regard to the opening of the park roadways to automobiles, was recently brought to a more liberal view at the solicitation of the Board of Governors of the Automobile Club, and finally agreed to open all the park roads to automobiles for a sixty days' trial, under certain restrictions. The club members feel that it is not wise to antagonize the Commissioners at the present time, particularly in view of the fact that the "night-hawk" drivers make little pretense to observe the speed laws.

It is felt by the Board of Governors that a compliance with the present law will lead to further concessions, and that it is not unwise to go slow until the general users of the park roads have become used to the cars. It is thought that the hardship to the best interests of the automobile game is not great enough to make a legal fight, that very likely would be lost in the end, worth while.

VERDICT FOR DAMAGE SET ASIDE.

Special Correspondence.

MINNEAPOLIS, Aug. 5.—Judge Brooks has this week set aside the verdicts in two damage suits against automobilists because it was proven that the horse was not "city broke." John Duffield and Harry B. Cramer were coming down Fifth avenue April 5, when Mr. Cramer's horse took fright at an automobile driven by Louis Basting. Both men were thrown out, and in the suit which followed Mr. Cramer was allowed $316, and Mr. Duffield $658. An appeal was taken, and in a lengthy order Judge Brooks held that the verdict was to a great extent the result of prejudice against the automobile. He also cited the fact that the horse was not city bred, but had been brought to Minneapolis from a farm but eight days before, and that it had, consequently, not been sufficiently educated in city ways.

Judge Brooks further declared that people who use automobiles have as much right to the road as those who travel by the old methods. In setting aside the verdicts the judge granted new trials.

ALL PITTSBURG AROUSED.

By Act of Reckless Chaffeur—Rewards Offered and Officials Active.

Special Correspondence.

PITTSBURG, Aug. 5.—The chief topic of interest in Pittsburg automobile circles for ten days has been the chase and capture of Frank Hodge, the chauffeur who ran down Angelo Pouch on Saturday evening, July 29, and caused injuries which, it is feared, will result in his death. Public indignation against reckless drivers was at a high pitch before this event on account of recent serious accidents of a similar nature. The fact that Hodge's action was so bold and cold-blooded, and that it was witnessed at close range by a number of Pittsburg's most prominent citizens, made the case more aggravating and brought it to the notice of the authorities in a way that called for immediate and energetic action.

Following the offer of $100 reward, which the Pittsburg Golf Club made for the capture of Hodge, the Automobile Club of Pittsburg offered a reward of $500. Hodge left the city the night of the accident and went to Buffalo. Here the Pittsburg authorities got track of him, and, at their request he was arrested by the Buffalo police on Thursday. It is said that Hodge is a member of a prominent Buffalo family and that through their efforts he was released on $1,000 bail.

This action was a surprise to the Pittsburg detectives, as they claimed the Buffalo authorities had no right to release Hodge until they had had an opportunity of serving extradition papers on him. These were issued at the Allegheny county court house Saturday, but may not be served. Meanwhile an effort will be made to have the Buffalo authorities postpone Hodge's hearing, in order that he may be brought back to Pittsburg and tried on a charge of felonious assault and battery.

TOLEDO DRIVING CLUB

Objects to Use of Track for Auto Races—May Seek Aid of Courts.

Special Correspondence.

TOLEDO, Aug. 5.—The Toledo Driving Club does not take kindly to the idea of having its track used for automobile races. While not the owner of the track, it has leased it for the season, excepting certain dates which are to be used for horse racing and similar matinees.

The owners of the track, however, leased it for the automobile races a few days ago, and this stirred up the blood of some of the members of the Driving Club. Perhaps the sentiments of I. R. Sherwood, president of the club, may show the sentiments of at least some of the members. Said he: "We

are investigating the question to see whether we procure an injunction to prevent the track from being used for automobile races. Several hundred dollars were expended in getting the track in shape, and after the automobile races it is in such bad shape that the club must expend a large sum in repairing it."

It is possible that future automobile meets will not be held here if the promoters are obliged to fight their way in the courts. It is pleasing to note, however, that all the members of the Driving Club do not coincide with the ideas of the president, and it is possible that when a meeting to consider the question is held that the objection will be voted down, a thing which some of the members are at present working for.

LONG BRANCH CARNIVAL.

Races, Non-Stop and Economy Run and Six-Day Tire Test Planned.

Entry blanks for the second annual Long Branch Automobile Carnival have been issued by Secretary W. J. Morgan, No. 116 Nassau street, New York, representing the North Jersey Automobile Association, under whose auspices the events will be held.

The carnival will open with races at the Elkwood Park mile track on Friday and Saturday, August 18 and 19, six events having been arranged for each day. At 12:05 o'clock Monday morning, August 21, the six-day non-stop contest will be started. This will include the tire and fuel economy contest. The test will be made over a 30-mile circuit, with Long Branch as the starting point. Awards will be made by a commission on the following basis: Non-stopping of motor, 50 per cent.; mileage covered, 25 per cent.; economy of fuel, 25 per cent. Each contesting car must be provided with at least two crews, and an observer will accompany and ride in each car throughout the test.

For the six-day tire test for the Burrelle trophy four to six Maxwell cars will be provided, all of a similar model and weight. Each tire contestant will fit one of the cars with its make of tires. The cars must average not less than 12 miles an hour for the entire six days, figured on gross time. An observer will accompany and ride in each car, and the observers will be changed so that no one observer will ride in one car more than three shifts during the week. Each contesting car must be equipped with two odometers, which will be tested and approved by the officials.

Observers for both the non-stop and economy run and the tire contest will be residents of Long Branch and vicinity, men unknown to the automobile trade.

Entries will close with Secretary Morgan, No. 116 Nassau street, New York, August 14-17.

PIKE'S PEAK OR BUST.

Special Correspondence.

DENVER, August 3.—Entry blanks for the Pike's Peak or Bust Automobile Climb, which is being promoted by G. A. Wahlgreen, are being prepared and will be mailed within a week.

A committee is now working on the conditions for the climb and will have them ready in a few days, at which time they will be announced.

The entry fee has been placed at $100, with a refund of half that amount if the entrant actually undertakes the climb.

The date for the climb has been fixed for the last day in September, and will be preceded by races at Overland Park, Denver, and a road race from Denver to Colorado Springs.

MORE JERSEY RACING.

Association Formed at Atlantic City to Promote Racing on Beach.

Special Correspondence.

ATLANTIC CITY, Aug. 7.—Encouraged by the success of the recent Cape May beach racing venture, automobilists and city officials of Atlantic City are endeavoring to popularize the 2 1-2-mile stretch of beach below that place between Ventnor and Longport, as a racing center. The beach was tested last week and found suitable at low tide for contests in which not more than four cars compete, and equally as smooth and hard as that at Cape May.

Arrangements have been made for the incorporation of a local automobile racing association. It was decided at a meeting held last Tuesday night to hold a test tournament over the course on Saturday, August 19. In addition to a series of events for stock and racing cars for the mile and kilometer, there will be several attempts on the records for those distances.

Another candidate for racing honors is Seven-Mile Beach, extending from Avalon to Stone Harbor, and about midway between Cape May and Atlantic City. While the beach itself, by reason of its being without a single obstruction, and of its length, width and firmness is the superior of the others, it has the disadvantage of not possessing a suitable road connecting it with the mainland. At a meeting of the Avalon Improvement Company and the Cape May County Board of Freeholders, measures were taken to overcome this defect by next spring, and before the summer of 1906 it is proposed to build a clubhouse and garage in Avalon for the new racing organization which was formed there last week.

CAPE MAY BEACH RACES.

Two-Days' Program Announced for August 25 and 26.

Special Correspondence.

CAPE MAY, N. J., Aug. 5.—Under the auspices of the recently organized Cape May Automobile Club a two-days' race meeting will be held over the beach course here Friday and Saturday, August 25 and 26. The races will be conducted under the rules and sanction of the American Automobile Association. S. M. Butler, secretary of the A. C. A., will act as official timer; A. G. Batchelder, secretary of the A. A. A., referee, and F. J. Wagner will officiate as starter and clerk of the course.

A number of handsome prizes have been offered for the several events, and special prizes will be given for the mile and kilometer speed trials. The $1,000 and $500 Cape May trophies will be given outright for the gasoline cars making the fastest mile and fastest kilometer, respectively, over this course during the season.

Owing to the tidal conditions the races will be started at 8 o'clock on Friday morning, and all drivers should report at the club rooms in the Stockton Hotel, Cape May, Thursday night before midnight. The entries will close with J. Hiscock, secretary Cape May Automobile Club, No. 1438 South Penn square, Philadelphia, August 22.

LABOR DAY RACING AT BENNINGS.

Special Correspondence.

WASHINGTON, D. C., Aug. 5.—The Central Labor Union has been granted a sanction for a race meet at the Bennings track on Labor Day, and a committee is now at work forming a program. Efforts are being made to interest several drivers of note, in the hope that one or more stars can be secured.

Washingtonians do not have many opportunities to see automobile racing, but they are loyal to the game and will turn out in great numbers if the sport is worthy.

The Bennings track has been the scene of many notable running races, and it considered one of the best mile tracks in the country. It is about three miles outside the city limits and a trolley road leads to the track gates, while automobilists can reach the track over one of the best roads leading out of the city.

WISCONSIN FLOWER PARADE.

Pretty Women in Decorated Cars Make Gorgeous Display at Oconomowoc.

Special Correspondence.

OCONOMOWOC, WIS., Aug. 3.—The first automobile floral parade ever held in Oconomowoc was the principal feature of a two days' fete held here last Friday and Saturday. Oconomowoc is probably the best known summer resort in this section of the country, and is patronized by wealthy families of Chicago and Milwaukee, as well as by a great many from Southern cities. Inasmuch as many of these patrons are automobile enthusiasts, it was decided to hold an automobile parade, which was a huge success.

Late Saturday afternoon the machines, forty in number, wound their way round Fowler Lake, and through several of the principal streets of the city. The first prize was won by Louis Dozier, of St. Louis, whose machine was transformed into a sailboat. The sails floated in the breeze and the hull concealed the car completely. Mr. and Mrs. C. W. Scudder, also of St. Louis, occupied the car with Mr. Dozier.

Mrs. P. A. Valentine's car was awarded second honors for decorations. It was covered with red poppies, and the occupants were Mrs. John J. Mitchell, Mrs. Vernon Booth and Mrs. W. J. Chalmers. C. A. Leiter, of Chicago, acted as chaffeur. Another car entered by Mrs. Valentine was decked with sunflowers.

One of the most attractive cars was that of John Dupee, which was decorated with poppies, Easter lilies and chrysanthemums, which were held in position on top of the canopy by a beautiful doll. The occupants of the car were Misses Phœbe and Maria Eckels and Misses Marion and Charlotte Partridge. Mr. Dupee also entered a second car.

Charles H. Simms' car was one of the most striking in the parade. It was a mass of pink roses on pink tarlatan. The ladies wore pink with pink hats and carried pink parasols decorated with roses. Mr. Simms, Mrs. F. W. Peck, Mrs. Charles Simms, Miss Charlotte Simms and W. H. Simms occupied the car.

TOLEDO RACE MEET.

First of New Association—Oldfield Breaks Half-Mile Track Record.

Special Correspondence.

TOLEDO, Aug. 4.—The half-mile track record was broken here on July 30 when the Toledo Automobile Racing Association held its first meeting. Barney Oldfield, driving the Peerless *Green Dragon*, covered the mile in 1:11 2-5, just 2 2-5 seconds faster than the former record, which was made by him at Omaha last summer.

The three-heat match race for $1,000 which had been arranged between Oldfield

and Earl Kiser was called off at the beginning of the second heat, when Kiser's car was found to be out of order. Oldfield won the first heat by about 50 yards, in 3:39.

The other races of the afternoon were between local automobilists, and afforded fairly good sport. The attendance was about 5,000, considerably larger than was expected.

NEW 'FRISCO BOULEVARD.

Twelve-Mile Driveway to Be Built by City and Club.

Special Correspondence.

SAN FRANCISCO, Aug. 1.—Plans have been announced by the Automobile Club of California for the new boulevard out of San Francisco into San Mateo county, and subscriptions have been invited. The city of San Francisco will construct the road out Nineteenth avenue to the San Mateo county line, past the new golf clubhouse and the Ingleside track, and from that point the Automobile Club will take the matter up.

The San Mateo road will cost $35,000, the amount to be raised by 350 subscriptions of $100 each, and on the completion of the road it will be turned over to San Mateo county, to be maintained by it thereafter, with the only condition that it shall not be open to heavy teaming. It is proposed to start work about August 1.

This road has been needed more than any highway improvement in the vicinity of San Francisco, as there is not a safe highway out of the city at the present time. The roads in San Mateo county beyond the proposed boulevard are excellent, but owing to the trouble in getting out of San Francisco the greater number of the car owners prefer to take the ferry across the bay into Alameda county. The new road will add greatly to the pleasure of automobiling hereabouts, and will increase the popularity of runs into the picturesque country on the west side of San Francisco bay. The road will itself lead through a picturesque section, the greater portion of the way being along a line of foot hills. There will be no grade greater than five per cent., and for most of the way it will be 2½ per cent. or less. The newly constructed portion of the road will be about twelve miles in length.

ST. PAUL WANTS GLIDDEN TOUR.

Special Correspondence.

ST. PAUL, Aug. 5.—The A. C. of St. Paul is waging a tremendous campaign to secure the Glidden tour for next year. B. A. Ledy, secretary of the club, has taken the matter up with the Glidden Tour Committee in the hope that it will decide to select the Saintly City as the starting point of the 1906 tour. Reports have reached St. Paul that many tourists are in favor of abandoning the route through the White mountains in favor of some Western city. This has encouraged the automobilists of St. Paul and Minneapolis, both of which cities have made application for the tour.

ROAD BUILDING IN MINNESOTA.

Special Correspondence.

ST. PAUL, August 4.—St. Paul automobilists are pleased at the announcement that plans for the construction of about twenty-five miles of good roads in St. Paul and vicinity are being considered by the Ramsey County Good Roads Association, which held its first annual meeting Tuesday, Aug. 1. Twelve miles of permanent road improvements were made during the last year, and plans are under way to make the total mileage forty.

The association is working in co-operation with the board of county commissioners. It has secured the passage of a law providing that all improvements in excess of $100 shall be let by contract, which has resulted in securing much better service, and a law authorizing the expenditure of a larger amount than heretofore for permanent roads. The authorities have expended $35,000 this wear, and with this sum have accomplished almost as much as was accomplished by $250,000 expended during the previous ten years. The association is working to improve Arcada street, the Point Douglass road, Cleveland avenue, Cherokee avenue and State street in St. Paul and several roads leading from the city to main highways in the country.

WORKING ON MEADOW ROADS.

Special Correspondence.

PHILADELPHIA, Aug. 7.—Loud and constant complaints of local automobilists as to the miserable condition of the "meadow road" connecting Pleasantville and Atlantic City have at last roused the road officials of Atlantic county to action. The new road, which has been in course of construction for several months, and work on which has been delayed through contractors' mistakes and legal squabbles, will be rushed to completion immediately.

The automobilists got together last week and told the Atlantic City Hotel Men's Association that unless work on the road was recommenced at once they would cease coming to the shore. This was not without result. The association forthwith insisted on the Board of Freeholders taking instant action, and within forty-eight hours work on the road was again in progress. It is now announced that the road will be completed about September 15.

MEETING OF ROAD MAKERS.

The semi-annual convention of the New York and Chicago Road Association will be held at Lakewood, on Lake Chautauqua, N. Y., August 11-12, under the joint auspices of the Lakewood Chamber of Commerce, the New York and Chicago Road Association and the National Association of American Road Makers. These associations are working in the interest of improved interstate highways.

A number of interesting addresses are scheduled for this convention. An effort is being made to induce President Roosevelt to attend and address the assembled delegates. Invitations have also been extended to the governors of New York, Ohio, Indiana and Illinois, and the mayors of the cities along the route of the proposed New York-Chicago trunk line road.

The regular annual meeting of the National Association of American Road Makers will be held at Port Huron, Mich., August 29, 30 and 31.

EXPORTS OF AUTOMOBILES.

Exports of automobiles and parts from the United States for the month of June, 1905, as shown by the government report, were $313,499, as against $181,798 for the same month in 1904. And for the twelve months ending with June for each year in the last three years, the following interesting figures were given: 1903, $1,207,065; 1904, $1,895,605; 1905, $2,481,243.

COMMERCIAL GAINS FAVOR.

St. Paul Merchants Substituting Autos for Horse Drawn Vehicles.

Special Correspondence.

ST. PAUL, Aug. 5.—No feature of automobiling in St. Paul has shown a greater development during the past year than the commercial car. Not less than half a dozen firms have abandoned horses for delivery service this summer and have installed gasoline or electric automobiles, and several firms which have used automobiles for two or three seasons have purchased larger cars this year.

St. Paul is the commercial center for Minnesota jobbers, and it is among this class of business houses that the commercial vehicle has made its greatest headway.

Solid tires are used almost exclusively on commercial cars in St. Paul. Some of the stores, however, which employ small cars in delivery service use pneumatics, but even among these cars solid tires are making great headway. Some of the candy companies, as a means of advertisement, display in front of their windows the various cars they have used in the last five years, showing the development of the commercial automobile.

The roads in about the Twin Cities are generally in good condition, so that the expense of repairs is considerably less here than in some other cities. St. Paul also has several residence districts situated several miles from the downtown district, so that much better time can be made with the commercial automobile than with the horse-drawn vehicles.

JEFFREY OPENS MILWAUKEE BRANCH.

Special Correspondence.

MILWAUKEE, Aug. 5.—The Thomas B. Jeffrey Company, of Kenosha, maker of Rambler automobiles, to-day took possession of the C. G. Norton Company garage of this city, and will occupy it as a branch of its Kenosha factory. The garage is one of the largest and most up-to-date in the city, and was built under the direction of Mr. Norton at a cost of about $15,000. While the Norton Company will discontinue its garage business, smaller quarters will probably be secured and the company will continue the sale of automobiles. In addition to handling its machines, the Jeffrey's Company will also conduct a storage and rental business.

LOZIER TO MOVE UPTOWN.

Another modern garage and salesroom for the now rapidly growing uptown automobile center is that of the Lozier Motor Car Company, which is being erected at the northwest corner of Broadway and Fifty-fifth street, New York City, adjoining the Pope garage. The building will contain four stories and basement, and is being specially constructed. While it will not be the largest of the kind in the city, it will be equipped throughout with modern apparatus. The first and second floors will be used as display and salesrooms for automobiles and power boats, the third and fourth floors for storage purposes, and the basement will be fitted up as a repair department.

For several years past the general offices of the Lozier Company have been located in the Washington Building, 1 Broadway, New York, but since automobiles have been included in the product of the company it has been found advisable to secure other quarters.

WORCESTER CLUB QUARTERS.

Will Be Removed at an Early Date—Interested in Good Roads.

Special Correspondence.

WORCESTER, MASS., Aug. 5.—The August meeting of the Worcester Automobile Club was held last Tuesday evening in the club's quarters in the Bay State House, with a fair attendance. President John P. Coghlin occupied the chair and appointed a committee to consider the advisability of making a change in the headquarters of the club. It is only a mater of a few weeks ago that the club moved into three spacious rooms on the first floor front of the Bay State House. The present arrangement is distasteful, however, to a number of the members, and new quarters will be sought.

The club also voted to lend all possible aid to the selectmen of nearby towns in regard to the posting of cross roads and forks throughout Worcester county.

The proposed trunk line which will pass through Worcester, and which is to be a branch of the line between New York and Chicago, was discussed at considerable length. A great deal of enthusiasm was manifested, and Asa Goddard, a member of the good roads commission, was appointed to confer with other members in regard to the matter.

Harrison W. Bowker and Lucius I. Knowles, of Worcester and Harris W. Deane, of Spencer, were elected to the membership.

LEICESTER FLAG STATION.

Established by Worcester Club to Warn Unsuspecting Automobilists.

Special Correspondence.

WORCESTER, Mass., Aug. 5.—The Worcester Automobile Club has made a new move against Constable James M. Quinn, of Leicester, and his equally watchful fellow constables, for the flag goes up against him immediately. A flag station has been established just over the Spencer line as a result of the half-dozen motorists whom Constable Quinn has brought to the Central District court this week and fined. All automobiles headed for Leicester, beginning to-day, are flagged and warned of the laws of that town and of the activities of the constables.

Although stationed to warn automobilists of the actions of the Leicester constables, the flagmen will take and keep a record of every vehicle—horse-drawn or motor-propelled—in either direction. This record is being kept to demonstrate beyond the possibility of doubt, to the Leicester selectmen at least, that the automobile has come to stay. It is expected by members of the Worcester Automobile Club that the record thus kept will prove that automobiles passing this point, which is on the highway of the most direct route between Boston and New York, and the West, will outnumber horse-drawn vehicles at least two to one.

The flag station will be maintained at this point as long as the constables of Leicester continue active. Should the latter change the base of their operations, the flagmen will follow suit. The State highway is the checkerboard, and the Worcester Automobile Club intends to make a move every time the police force of Leicester thinks that a change of scenery is necessary for trapping unsuspecting automobilists.

The members of the club think that the maintenance of the flag station will prove cheaper in the end than paying the heavy penalties inflicted by Judge Utley when they are haled into his court.

With reference to the establishment of the flag station by the club, Constable Quinn states that it will be necessary for it to maintain the station until the snow flies, for he will be on duty at the same old place in the same old way while it is possible for automobiles to run in excess of the legal limit.

MILWAUKEE CLUB STIRRED

At Attempted Hold-Up of Automobilist—Will Offer Reward.

Special Correspondence.

MILWAUKEE, Wis., Aug. 5.—An attempted hold-up, or an act of vengeance on the part of farmers on reckless automobilists, took place about twenty-five miles south of Milwaukee last Wednesday evening. The object of the attack was Richard T. Robinson, secretary of the J. I. Case Threshing Machine Co.

Mr. Robinson was making a trip through the country with his wife and children when he was shot at from ambush, but fortunately the bullets whizzed over their heads. Inasmuch as Mr. Robinson was unarmed, the machine was speeded away.

Considerable feeling was aroused among members of the Milwaukee Automobile Club when it was learned that opposition to the free use of the automobile had taken the form of armed resistance, and it is possible that the club will offer a reward at its next meeting for the arrest of the guilty person. The club has on several occasions manifested its disapproval of scorching and reckless driving, and is ready to co-operate with the authorities in enforcing the State law, but steps will be taken to provide against a recurrence of similar interference.

"It is likely that the club will offer a reward of $50 for the arrest of the guilty person in this case, and that a standing reward of $100 will be offered for the conviction of anyone maliciously interfering with the rights of automobilists on the highways," said James T. Drought, secretary of the club. "While the club stands ready to assist in the enforcement of the automobile law, and is desirous of respecting the rights of others, at the same time it is equally anxious to assist in the prosecution of anyone endangering the lives of automobilists."

BUFFALO CLUB MEETING.

Articles of Incorporation Signed—Floral Parade August 17.

Special Correspondence.

BUFFALO, Aug. 5.—The formal papers incorporating the Automobile Club of Buffalo were signed by the board of governors of the club at a meeting held last Monday afternoon. Those present were Augustus H. Kroll, Dai H. Lewis, H. A. Meldrum, Charles Clifton, Edward H. Butler and W. H. Baker.

A report was made at this meeting to the effect that the work of putting up signs in the country in the direction of Batavia and Fredonia is progressing rapidly, and has been augmented by the donation by Charles Clifton, of the Pierce company, of a number of white enameled iron signs to be posted in places of danger or for assistance in direction.

It was decided to hold a floral and illuminated parade on the night of August 17, which is the night preceding the auto races at Kenilworth Park. This will also be auto night at Athletic Park, a Buffalo pleasure resort, and the parade will finish there. The cars will be driven around the cement walk in the park, and the park management will give a prize for the best decorated machine.

RACING IN WESTERN CANADA.

Winnipeg Club Holds Successful Meet—Will Promote Road Race.

Special Correspondence.

WINNIPEG, Canada, July 31.—The race meeting held under the auspices of the Winnipeg Automobile Club during the recent Industrial Exhibition proved a success in every way, and should do much to advance the interests of the sport in western Canada. There were a number of entries, and the several events were run off promptly and without accident.

The passenger race, which was a novelty in this section, brought out about a dozen starters. Each car carried three passengers, who were unloaded one at a time at the 1-8, 1-4 and 3-4-mile posts, and reloaded on the second round. J. Eaton, of Toronto, in a 30-horsepower Packard, finished in first place. Mr. Eaton also won the five-mile race for heavy touring cars, owners driving. The fight for second place in this event resulted in a victory for J. Moxam, Ford, with J. Mow's Marion third.

The three-mile race for light touring cars was really a duel between three Ford cars, J. Moxam winning by 50 yards, with G. Erzinger second.

The most interesting event of the meet was the five-mile free-for-all, in which there were four entries. The cars all got away well from a standing start, and maintained their positions until the end of the third mile, when J. K. McCulloch's 15-horsepower Darracq and Maxim's Ford dropped behind, leaving Eaton's Packard and the 16-horsepower Marion driven by Noah Davison to fight for the finish. Davison won in 8:21.

The club is now planning a road race to be held at an early date, open to any car in Canada.

ANNUAL MEET OF F.A.M.

Opens with Endurance Run from New York City to Waltham, Mass.

The first event in connection with the annual meet of the Federation of American Motorcyclists was started on Monday morning, August 7, when forty-eight motorcyclists set out on a 250-mile endurance run from New York to Waltham, Mass., where the meet is being held. The start was made from the club quarters of the New York Motorcycle Club, at 10 West Sixtieth street, New York, at 3 o'clock in the morning, the contestants being headed at the start by a squad of bicycle policemen. The running schedule calls for an average speed of fifteen miles an hour for the entire 250 miles, making the total running time from New York to Waltham 16 hours 35 minutes. Controls were established at Bridgeport, Hartford, Springfield and Worcester. The program at Waltham extends to Friday, August 11, and

includes the road and track races, tours, hill-climbs, economy tests and many affairs of a social nature.

NEW FACTORY FOR MUSKEGON.

Special Correspondence.

MUSKEGON, MICH., Aug. 5.—The chamber of commerce of this city has closed a contract by which the Continental Motor Company of Chicago will remove to this city and erect a new plant. The company will not build automobiles complete, but will manufacture the most important parts used in the construction of the machines. The principal building of the new plant will be of brick, 60 by 250 feet. It will be two stories high, and will cost about $20,000. The officers of the company will visit the city at an early date and select a site.

AUTO BUSSES IN SAGINAW.

Special Correspondence.

SAGINAW, MICH., Aug. 5.—Three motor 'buses of a special type, built by the Olds Motor Company, of Lansing, are in operation in this city, and will continue in operation during the street car strike. The 'buses were purchased by the street railway employes' union to run in opposition to the street cars. The machines are of 16 horsepower, and have a capacity of thirteen persons each.

It is planned to purchase three larger cars for use in connection with the three now running. The new cars will be of 20 to 22 horsepower, and will seat eighteen persons each.

RECENT INCORPORATIONS.

National Association of Automobile Dealers; principal office in Buffalo, N. Y. Directors: Wellington C. Jaynes and Harry C. Wilcox, of Buffalo; Harry Unwin, New York; Walter Githens, Chicago; Percy L. Neil, Philadelphia; Frank G. Smith, Jr., Detroit; E. P. Brinegar, San Francisco; A. C. Halsey, St. Louis, and William M. Murray, Pittsburg.

Jaynes Auto Co., Buffalo; capital, $100,000. Directors: W. C. Jaynes, F. I. Allger and C. B. Benney.

Manhattan Automobile School, New York; capital, $1,000. Directors: F. R. Jones, Ithaca; C. L. Cornell and J. B. Cornell, Orange, N. J.

Ideal Spring Manufacturing Co., Albion, Mich.; capital, $25,000. To manufacture automobile springs.

Automobile Lining Pneumatic Co., Providence, R. I.; capital $100,000. Incorporators: Lucian Hiroux, William Anger and Napoleon Hebert, of Central Falls; Joseph de Champlain, of Fall River, and Philias J. Savoie, of Central Falls.

Stover Automobile Co., Freeport, Ill.; capital, $50,000. Incorporators: Jacob Weiss, J. F. Smith and D. C. Stover.

Wayne Automobile Co., Chicago; capital, $5,000. Incorporators: F. W. Cornish, Charles Freidberg, L. W. Freidberg.

International Speed Register Co., New York; capital, $600,000. To manufacture vehicle speed, time and stop indicators. Directors: E. A. Henkle and W. E. Hering, of Philadelphia; E. O. Towne, New York.

City Machine Co., Detroit, Mich.; capital, $25,000. To manufacture automobiles and auto supplies. Incorporators: Myron E. Benjamin, Lewis W. Raulet, George S. Benjamin, Frederick J. Nicholson, Alonzo L. Johnston, Franklin O. Prussia, Andrew W. Smith and Myron E. Benjamin, trustee.

News and Trade Miscellany.

The Frontenac Yacht Club, of Frontenac, N. Y., announces another three-days' power boat race meet beginning August 29.

An automobile race meet is now being planned to be held on the second beach at Newport the latter part of this month.

Charles L. Meade has been appointed superintendent of the Chicago Automobile Club, succeeding Robert W. Spangler, assistant secretary, resigned.

The Middletown Automobile Body Company, recently organized at Middletown, Conn., has commenced the manufacture of automobile bodies in wood, iron and aluminum. The company makes a specialty of the limousine.

It is announced through cable despatches that M. Charley, the Paris sales agent for the German Mercedes cars, will visit New York City about the 1st of September for the purpose of establishing a New York branch for the sale of these cars.

Through a compositor's error, the price of the Reo runabout appeared as $6.50 in the advertisement of the Reo Automobile Company, on page 85 of the Advertising Section of THE AUTOMOBILE of July 20. This should have read $650.

Homer G. Ford, his wife and babe, started from Eaton Rapids, Mich., on July 4 in a touring car from his home in Eagle City, Alaska. Mr. Ford is a government contractor in Alaska, and his baby is said to be the first white child born at Eagle City.

The Wayne Automobile Company, of Detroit, announces the establishment of the following agencies for the sales of its cars: E. H. Pashak, Sun Prairie, Wis.; Henry Wegman, Auburn, N. Y.; M. R. Brown, Passaic, N. J.; H. F. Tyler, Junction City, Kan.

The committee of management of the American Motor Car Manufacturers' Association will hold its next regular meeting in New York City on August 25, at which time it will confer with the officials of the Automobile Club of America with regard to the next New York show.

In order that those who compete in the Thousand Island auto-boat tournament may also be able to take part in the National Motor Boat Carnival on the Hudson River, New York, the dates for this latter event have been changed from Labor Day week to September 14, 15 and 16.

A movement is now on foot for the organization of an auto-boat club among the New York enthusiasts. A prospectus has been sent out by Hugh S. Gambel, and a call will soon be issued for a meeting at the Hotel Manhattan, when the matter will be formally taken up.

During the convention of police chiefs, sheriffs and prosecuting attorneys of the state recently held at Jackson, Mich., the visitors were treated to an automobile ride. There were twenty cars in the procession, and the run was made under the direction of Police Commissioner F. E. Palmer.

A movement is now on foot looking to the construction of a 40-foot driveway around Lake Chautauqua. The project was suggested by Leroy Pelletier, manager of the Duquesne Motor Car Co., of Jamestown, N. Y., and the matter was immediately taken up for consideration by the Lakewood Chamber of Commerce.

Since the destruction by fire some time ago of the plant of the Detroit Steel Castings Co., of Detroit, the company has been erecting new and improved buildings. The buildings are now practically completed, and equipped with modern machinery, and the company expects to put the plant in operation about September 1.

A special lug, known as the four-inch 1905 lug, is supplied by the Continental Caoutchouc Co., of 298 Broadway, New York, for use with the new style 4-inch rims adopted during the fall of 1904 by American manufacturers. These rims are 3-8 of an inch wider than the old style rims, and it is said that, though of the same circumference as the old style rims, the new ones are apt to cause trouble with tires if the latter are not perfectly fitted. The new lugs are designed to eliminate this trouble.

Commencing July 1, the Automobile Outing Company, a concern recently organized in Baltimore, began operating an observation service, running a seventeen-passenger motor 'bus to all points of interest in Druid Hill Park. The car leaves the main entrance of the park every half hour. The park embraces 1,200 acres, and is visited daily by thousands of persons.

The Armac Company, of St. Paul, has been reincorporated recently under the laws of Illinois for $50,000, and will remove to its new quarters at 464-468 Carroll avenue, Chicago, about August 15. In addition to its present line of Armac motor bicycles, the company will manufacture a side carriage attachment and fore-car attachment to be used in connection with its motorcycle, and also a light runabout of 6 horsepower. There will be no change in the officers of the company.

The Pittsburg Motor Vehicle Company, R. B. Ward, Thomas B. Pfarr, Jr., and John R. Rush, incorporators, has applied for a Pennsylvania charter, with $200,000 capital. The new company has absorbed the Shadyside Motor Vehicle Company, which has been doing business for about eighteen months without a charter, and for the present will be located in the Shadyside district, Pittsburg. The company will manufacture automobiles for commercial use only, and plans to erect a large plant in 1906.

The electric automobiles manufactured by the Societe l'Electrique, of Paris, France, will be handled in the United States by a branch located at 152 West Thirty-eighth street, New York, under the management of Bernard Maurice Dufresne and Count Armand de Gontaut Biron. The machines are called the "Gallia" cars, and are said to be well and favorably known on the Continent. Each rear wheel is driven by a separate motor suspended in such a manner as to make the machine run very smoothly. The models illustrated in the catalogue that has recently been issued for the United States comprise the usual forms in which electric carriages are seen, including light delivery wagons and an opera bus.

The Independent Pneumatic Tool Company, of Aurora, Ill., has succeeded the Aurora Automatic Machinery Company, this being the result of a reorganization of the original concern, which took place on July 1. The capital was increased from $250,000 to $500,000. John P. Hopkins, a former mayor of Chicago, is president of the new company; C. E. Erikson continues in the treasurership and also acts as manager. The manufacture of Thor air-cooled motors and motor cycle parts will be continued, and pneumatic tools and air turbines will also be made an important part of the factory product. The general offices are in the First National Bank Building, Chicago, and there is also an office at 170 Broadway, New York. It is expected that the output of the factory will be considerably increased.

INFORMATION FOR BUYERS.

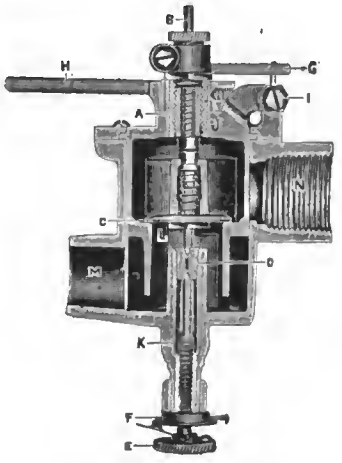
NOVEL SPARKING POINTS.—The new spark plug recently brought out by the Camp Cycle Co., of Columbus, Ga., is noticeable chiefly for its electrodes or sparking points, which are quite different from the usual form. The usual central rod, with the binding post on its upper end, carries at its

CAMP SPARK PLUG.

lower end a small wheel like a gear with sharp edged teeth, instead of a single wire point. The inner surface of the shell, where it is nearest to the central electrode, is cut with a coarse, sharp edged thread, there being two convolutions. Sparks occur at the points where the teeth of the little wheel cross the threads. As there are sixteen teeth in the wheel, and two threads, there are thirty-two possible points for sparks. The manufacturers state that when in operation the sparks occur first at one point and then at another, jumping from place to place. The sharp edges are said to be conducive to better sparking than blunt points.

MECHANICAL OILER.—Lubrication is of such vital importance to the explosion motor, especially when running at high speed, as in an automobile, that a great deal of ingenuity and labor have been exercised in the production of devices for insuring a positive and regular flow of oil to the various parts requiring constant and nicely regulated lubrication. The cylinder, for instance, of a gasoline motor cannot be occasionally soused with oil and then forgotten for a period; this would be fatal to its successful running. It must have a regular and uniform supply of oil at all times. A mechanical oiler recently brought out is that of the Auto Brass & Aluminum Co., of Flint, Mich. This oiler consists of a main case or tank containing the oil pumps and the mechanism for operating them, and also the lubricating oil. Thus all the parts are always thoroughly lubricated, if not almost submerged, and, protected from dust and dirt and from accidental knocks, they run under the most favorable conditions. There is a pump for every oil feed and also a larger pump, whose capacity is a little more than equal to the combined capacity of all the feed pumps, all operated by a single eccentric, the eccentric strap being an integral part of a crosshead that connects all the pump plungers, so that all move up and down in unison. The large supply pump takes oil from the bottom of the tank and delivers it into a header at the top of the tank. From the header the oil is distributed to the feed pumps by means of sight feeds, the quantity sent to each pump, and consequently the quantity delivered to each bearing, being regulated by needle valves. There is a relief valve in the header so that the excess oil pumped by the delivery pump is allowed to run back into the main tank; the valve does not open, however, until a considerable pressure has been attained, so that the oil is forced through the feed tubes at a pressure sufficient to dislodge any obstacle that might get in. The driving mechanism consists of a pulley for belt drive from the engine, the shaft on which the pulley is mounted driving the eccentric shaft by a worm gear. The same concern makes a specialty of manufacturing babbitt-lined split metal bushings, safety cranking devices, steering wheels, levers, pumps, engine parts and an extensive line of automobile and auto-boat parts and accessories.

FLOATLESS CARBURETER.—The float commonly used in carbureters for the purpose of regulating the level of gasoline in the spray nozzle is not an unmixed blessing, and many carbureters have been designed with a view to eliminating it while retaining the advantages of the float feed carbureter. One of the latest of these is the Gavelek carbureter, manufactured by the Lustre Chemical Co., of 1303 Michigan avenue, Chicago. In this carbureter, which is illustrated herewith, there is no float. The gasoline tank is



THE GAVELEK CARBURETER.

placed above the level of the top of the carbureter and the fuel flows to the latter by gravity, entering at *K*, the area of the opening through which it passes upward being regulated by a needle valve. Gasoline is admitted to the mixing chamber *L* when the suction of the motor piston raises the disc *C* from its seat, raising the needle valve, which normally closes the upper end of the gasoline passage through the plug *D*, and at the same time allowing the mixture to pass up from the mixing chamber and into the engine supply pipe *N*. Springs whose tension is adjustable keep the diaphragm and valve normally seated. A throttle is operated by lever *H*. It is stated by the manufacturers that the carbureter is automatic in its operation when it has been correctly adjusted, and that it is particularly quick in starting and economical in operation.

BULLOCK DUPLEX IGNITER.—A new model primary spark plug has been placed on the market recently by the Bullock Igniter Co., of Cleveland, O., formerly the Bullock-Beresford Co. Essentially, the plug is the same as the older models, but has been modified and improved in a number of details. It consists of a plug in which is incorporated a spark coil and vibrator, so that the usual separate spark coil is dispensed with, the plug being wired direct to the batteries and timer. A metal cover protects the parts from dust and dirt, and is readily removable for inspection. The manufacturers state that the Bullock Duplex plug is suitable for any motor, whether single or multiple cylinder, and that it can be operated on four cells of dry battery. If desired, a direct current magneto can be used instead of the dry cells.

TRIUMPH GAUGE PATENTS.—The Boston Auto Gauge Co., of 614 Old South Building, Boston, Mass., which manufactures the "Triumph" gauge for indicating the quantity of gasoline in the automobile tank, states that a series of five patents has been granted on this instrument, covering its construction very broadly. A patent was recently granted Mr. Martin, inventor of the gauge, for a tool designed to cut a circular piece out of a tank without allowing chips to fall in, the removal of the piece permitting the insertion of the gauge—a method which is recommended as being better than screwing the device into the filling hole, from which it must be removed every time the tank is filled.

ABOUT SWINEHART TIRES.—The Swinehart Clincher Tire & Rubber Co., of Akron, Ohio, manufacturers of the Swinehart solid rubber tires, states that the riding qualities of solid rubber tires are much improved by a rebeading process which this concern is introducing. The company has also found that the greater the concavity of the sides of their tires, the greater will be the resilience. If the tire is found to be too solid, one wheel is jacked up and the engine started so as to cause the wheel to turn. While turning, a piece of sharp sandstone is held against the tire at the proper place; this will quickly cut the tire down to the required extent. The tread may be beaded or furrowed by the same process, and this is said to have the effect of improving the riding qqualities. It will readily be seen that care must be taken in doing this not to cut away too much of the rubber; otherwise there will be danger of ruining the tire by making it too weak to safely carry its normal load.

TRADE LITERATURE.

Powell Manufacturing Co., Clinton, N. Y. Booklet illustrating and describing the Twentieth Century timer.

Sparks & Wray, 1557 Broadway, New York. Booklet illustrating and describing the "Uneedme" tools for removing and replacing pneumatic tires.

Van Husan & Farr Co., 520 Hammond Building, Detroit, Mich. Circulars describing the Snell hydraulic system for handling gasoline and oils, consisting of means for forcing the gasoline out through an outlet at the top of the tank by forcing water in at the bottom, the difference in specific gravity preventing the mixing of the two liquids.

Post & Lester Co., Hartford, Conn.—Catalogue of "Royal de Luxe" acetylene searchlights and lamps for automobiles and launches; also generators for same.

G. P. B. Hoyt Jamaica, Borough of Queens, N. Y.—Circular concerning an opposed cylinder motor in which the cranks are driven by a yoke in which are sliding blocks.

Western Motor Co., Logansport, Ind.—Circular illustrating and describing the well-known Rutenber two and four cylinder vertical motors; also mufflers and ignition timers.

Induction Coil Co., Miller Building, Milwaukee, Wis.—Catalogue of coils, spark plugs, switches, cable and other ignition apparatus. Also an automatic carbureter and an ignition timer, both of new design.

The Vanadium Alloys Co., 25 Broad Street, New York.—Booklet giving the results of numerous tests of "Vanadium" steel, which is said to be superior to other steels in many respects.

Rose Mfg. Co., 910 Arch Street, Philadelphia.—Circular describing "Neverout" mirror lens searchlights with Mangin mirror lenses; kerosene lamps for automobiles and launches, and acetylene generators of different sizes.

Buckeye Mfg. Co., Anderson, Ind.—Circular describing the performance of the Lambert friction drive car in the Chicago-St. Paul tour, and giving illustrations and short descriptions of the various styles of Lambert cars.

Phillips Motor Works, 405 Tacoma Building, Chicago.—Illustrations of Phillips double opposed cylinder motor and transmission gear mounted in a single frame; and Phillips air-cooled stationary gasoline engine, mounted on a base with tank and battery box.

T. S. Culp, Canton, O.—Circular illustrating and describing a 9-horsepower double opposed cylinder motor, which is furnished complete and ready to run, or else, if so desired, in the form of rough castings to be finished and assembled by the purchaser. Also a 3 1-2-horsepower single cylinder vertical air-cooled motor, which is sold in the same way.

Independent Pneumatic Tool Co., First National Bank Building, Chicago, and 170 Broadway, New York.—Catalogue of pneumatic drills, hammers and air turbines, flue rollers and accessories for same. This is a particularly interesting little catalogue to those who have to do with pneumatic tools, as it not only describes the tools made by this concern, but gives some useful information on the care and use of pneumatic tools generally.

Trebert Gas Engine Co., 163 West Main Street, Rochester, N. Y.—Circulars describing and illustrating the gasoline motors made by this concern, consisting of two-cylinder vertical 10-horsepower; double opposed cylinder 15-horsepower; and four-cylinder vertical 22-horsepower. Also an expanding clutch, and a sliding gear transmission giving three forward speeds and reverse, with the drive direct on the high gear.

Webster Mfg. Co., 1075 West Fifteenth Street, Chicago, Ill.—Booklet explaining and illustrating the Hedgeland anti-skid solid rear axle for automobiles. This is a solid axle in which no differential gear is required, there being a clutch at each end which permits the outside wheel to run faster than the axle when turning corners; it works in the same way whether the car is running forward or backward. One of the claims made for this axle is that it prevents skidding in a very large measure.

INDEX TO ADVERTISERS

THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, AUGUST 17, 1905—CHICAGO No. 7

A SHORT TOUR AMONG THE SEQUOIAS.

BY H. A. FRENCH.

SAN FRANCISCO, Cal., Aug. 7.—Increased use of automobiles on the Pacific Coast has resulted in the opening up to pleasure seekers of a number of exceedingly picturesque districts near the larger cities, which heretofore have been known to only a few cyclers or those who have taken driving tours with teams and light wagons. California is very sparsely settled, and there are vast tracts of undeveloped country, even in the immediate vicinity of its largest municipalities; railroads are few, and while the remarkable character of such parks as the Yosemite, the Mariposa Grove of giant redwoods, the Big Basin and other famous places has attracted a wonderful amount of tourist patronage, there are almost numberless spots of nearly equal picturesqueness which have been accessible only by means of stage lines running to small farming or mining communities, or are not reached at all by any regularly established means of transportation, and consequently are little known even by Californians themselves.

F. A. JACOBS AND PARTY TOURING AMONG THE REDWOODS NEAR LA HONDA, CALIF.

This is especially true of territory around San Francisco. The suburban district of California's largest city is exceedingly limited in area, but within "commuter" distance, as it would be regarded in any big Eastern center, can be found a country as wild and primeval as the far reaches of the Maine streams, and as picturesque as the more famous spots reached only after days of travel. The peninsula at the head of which San Francisco is located extends for about thirty-five miles between San Francisco Bay and the Pacific ocean, and from a width of twenty-five miles at the head of the bay it tapers to six miles within the environs of the city. A spur of the Coast Range forms its backbone, and along its central line are streams, lakes, canyons and splendid forests of towering sequoias, or redwood trees. In an Eastern state this district, within arm's reach of a city of 400,000 people, would be covered with thickly populated suburbs. Here, except for a line of beautiful towns and country seats along the bay side, and a small settlement here and there along the seashore, it is a wilderness of mountain and forest, intersected at convenient points by excellent roadways.

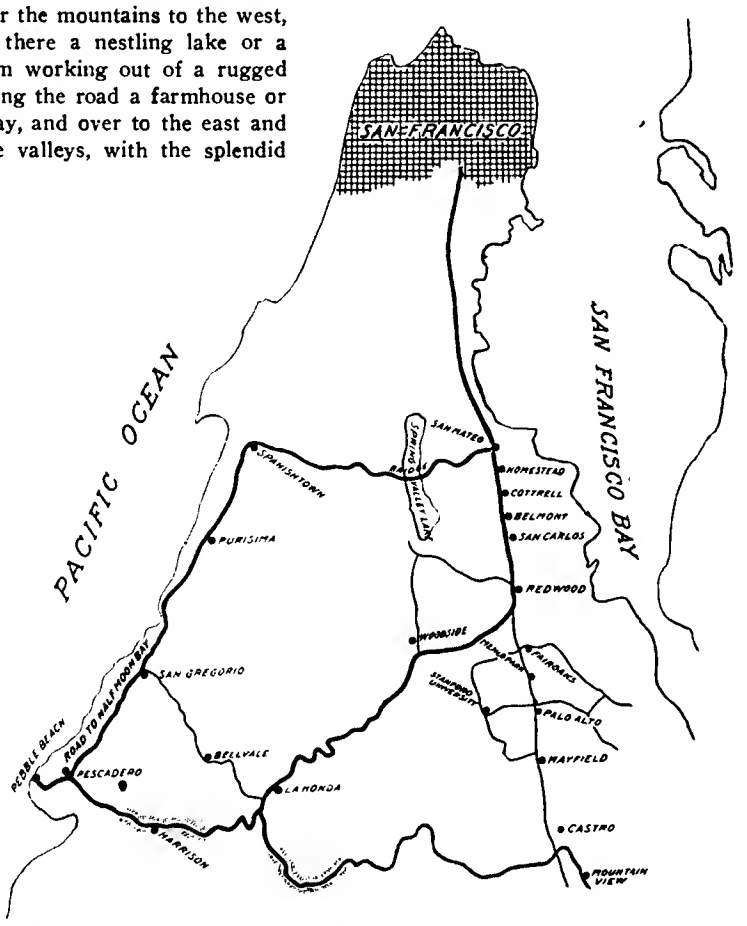
This same condition exists in a greater or less degree all about San Francisco Bay and beyond. Many of the attractive drives on the east side of the bay have already been brought into popularity by the automobilists, the poor condition of the roads leading out of San Francisco proper inducing the greater number of owners to take their cars over to the Alameda side on the ferry and start their runs from that point. Lately, however, the pioneering of the peninsula itself

has been begun by Messrs. Moore, Lowe, Jacobs and others of the more active members of the Automobile Club of California, and the result has been a revelation.

An auto trip of a day and a half was recently made by Fred A. Jacobs and a party of four friends over one of the routes into this section, which, up to the present time, is regarded by those who are most familiar with that part of the State as the most beautiful and charming of all the automobile drives within easy access of the California metropolis. In general terms, the run was along the bay shore through Burlingame and San Mateo to Redwood City, then across to Woodside and over the mountains to La Honda, in the heart of the redwoods, where a stay was made over night. The next morning the run was continued to Pescadero and the famous Pebble Beach on the oceanside, by the way of Harrison's, and thence through San Gregorio and Purissima, to Spanishtown, across the range again to San Mateo, and back to San Francisco by the original route. Altogether the run approximates 140 miles.

The run to Redwood City is known to all San Francisco automobilists. That portion which extends from Redwood to Pescadero and back to San Mateo is but little known, though the growing knowledge of its charm bids fair to make it one of the most popular in the entire state. The road winds over the mountains and through canyons, with some stiff grades, but the roadway is in excellent condition, and the run can be taken with ease by any car of moderate power. Mr. Jacobs and party made it in an 18-horsepower, two-cylinder Rambler surrey, which took all the grades with full load without trouble. There was not an instant's stop on the run for repair of mechanical parts.

The climbing begins within a mile of Redwood City, and the route enters the redwoods soon after passing Woodside. From this point to within a few miles of Pescadero the run is almost entirely through forests of these magnificent trees. At the summit of the range there is a view such as people cross continents to see. Sweeping forests cover the mountains to the west, with here and there a nestling lake or a mountain stream working out of a rugged gorge; back along the road a farmhouse or two dots the way, and over to the east and south lie fertile valleys, with the splendid buildings of Stanford University among the Menlo Hills in the far distance toward the head of the bay.



MAP OF SAN FRANCISCO PENINSULA, SHOWING ROUTE OF A DELIGHTFUL SHORT TOUR.

At La Honda there is a grove of the giant sequoias so towering and so dense that the normal twilight of waning day is advanced a full hour. The party reached this point at dusk, and after dinner at a comfortable hotel, was entertained by a party of campers before a big campfire within the grove itself. Those who have not experienced the charm of a night beside blazing logs in the heart of the forest have something still to anticipate with pleasure. Among the redwoods the charm of such an experience would be multiplied many fold. The great trunks taper upward till the tops seem to reach to the stars themselves, while the high arching branches appear to form a vast cathedral in which the spirits of the elements might worship with awe; the leaping tongues of flames illuminate the giant branches and cast shadows in myriad shapes, reaching out into the hiding places of wonderful mysteries. Seen under such conditions, La Honda must surely remain a memory for a lifetime.

Beyond La Honda the redwoods grow even more splendid and dominating. The road, extending at one time beside a stream, at another along the floor of a gulch, and again clinging to the mountainside, changes too often to become monotonous. The shade is so heavy that there is refreshing coolness even at midday on the hottest day of the year. A little beyond La Honda the road to Pescadero turns abruptly across the stream, and there is danger of missing the way by continuing on what seems to be the direct route. Those who make this mistake are the gainers. The road continues on over the range to Mountain View, near the head of the bay, and thence to San José. Emerging from the redwoods, it runs up over a "hogback" formation from which there is a view that fairly dwarfs by comparison that from the summit on the road into La Honda. Those who make this run leisurely should by all means take this route, at least as far as the crown of the range.

GATHERING PEBBLES AT PEBBLE BEACH ON THE PACIFIC COAST NEAR PESCADERO.

Passing a Freight Team on Crown of Mountain between La Honda and Pescadero.

Down through the La Honda canyon to Pescadero the run is a kaleidoscopic variation of the same general scenery until within half a dozen miles of the town, where the redwoods cease. Rolling foothills grow into forest-covered mountains, while the town, with its white-painted houses and well-kept yards and streets might easily be the original "Spotless Town." Pebble Beach, near Pescadero, is one of California's famous spots. Its pebbles are often sent abroad to be cut and polished, and are like none others in the world.

The run back to Spanishtown is along the edge of the Pacific Ocean. The grand expanse of the ocean is in sight all the way, and the surf rolls unceasingly. Back across the peninsula the route lies through open rolling country for nearly the entire distance, and the road is by far the finest highway in this section of the state. From Menlo back to San Francisco it is the old story.

Taken leisurely, with frequent stops to enjoy the full beauty of the country, the run is little short of ideal. Its crowning attraction is its proximity to the city, and the visitor from the East who cannot spare the week's time, or stand the exhaustion of the rough trip into the Yosemite, can hire a car and a chauffeur for a day, or a day and a half, and feel that he has not missed so much, after all.

A light delivery van driven by a motor that will run on almost any hydrocarbon—gasoline, kerosene, alcohol, methylated spirit or benzine—is being manufactured by the Parsons Motor Company, of Southampton, England. The motor resembles in every respect the ordinary type of single-cylinder, vertical, four-cycle motor except that the inlet valve, which is of large size and is mechanically operated, is placed at the top of a tube through which the incoming gas passes on its way to the cylinder. The outside of this tube is jacketed, and the jacket is filled with hot gases from the exhaust. The object of this arrangement is to heat the gases as they enter, and this, it is said, is the secret of the successful operation of the motor on so many different kinds of fuel.

Air-Cooled Motors in Principle and Practice--II.

By HERBERT L. TOWLE.

(*Continued from page 76, issue of July 20.*)

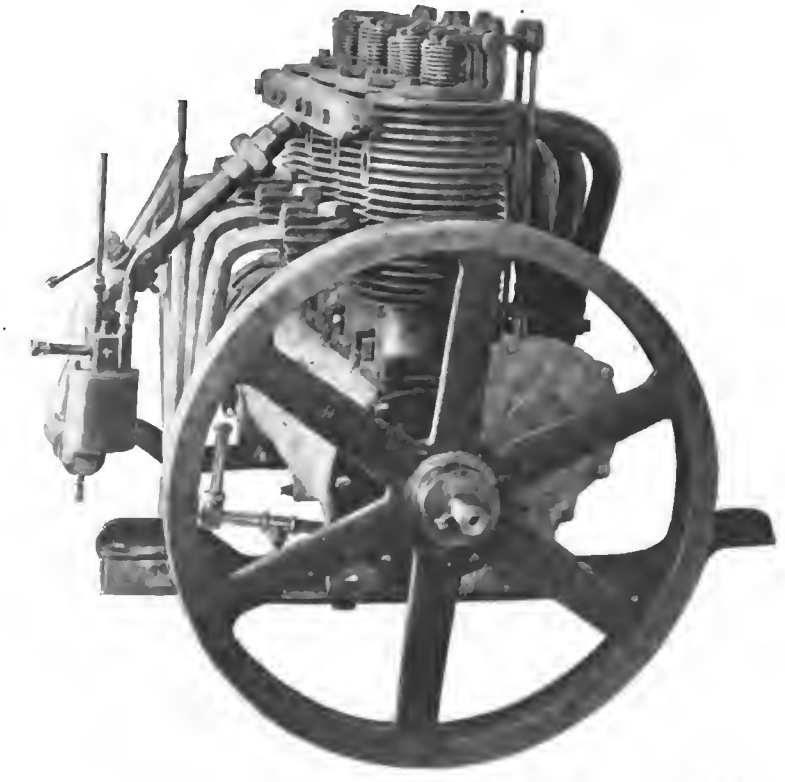
HAVING thus gone over the general principles involved, we may next take up the particular devices selected by different builders to disperse the heat with the rapidity demanded by considerable cylinder capacity.

As the nearest in type to the simple flanged cycle motor, perhaps the motor of the Crestmobile may be placed first. In this motor the conventional valve arrangement is retained, the suction-opened inlet valve being located directly under the exhaust valve. The distinguishing feature of the cooling flanges, which are cast integral with the cylinder walls, is their exceptional depth and thinness. By the exercise of special skill in moulding, they are made of extreme depth over the end of the cylinder, where the greatest heat is liberated. The motors run at high speed and are mounted at the front of the car, where they depend on the natural draught of the car's motion to supply them with air. Naturally the cars are light and of fair speed.

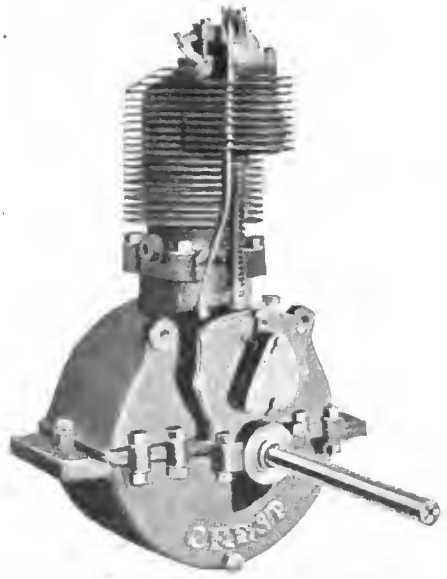
A distinct departure from the motorcycle type is made in the motor of the Franklin car. In designing this motor the Franklin Company's engineer, Mr. Wilkinson, reasoned that the principal cause of overheating in cycle motors was the high speed at which they were run, which compelled the cylinder and flanges to take care of an excessive flow of heat. He reasoned that by reducing the normal speed from 1,800 or 2,000 to 1,000 or 1,200, and by providing power enough, in proportion to the car's weight, so that the motor could ordinarily be run somewhat throttled, he would very much reduce the liability to overheating. Naturally this resulted in a much greater cylinder capacity for the car's weight than French practice indicated; but by dividing this capacity between four cylinders, each of 3 1-4 inches bore and stroke, the problems raised by large cylinder sizes were avoided.

Moreover, by placing both valves directly in the cylinder head, the area of inner wall surface exposed to the heat was reduced; and by placing the motor transversely in the bonnet, with the exhaust valves and pipes toward the front, every chance was given it to receive the benefit of the natural draught of the car's motion. So successful did this arrangement prove that it was not even necessary to use an especially low compression, such as is frequently required to avoid overheating the cylinder head. Under full load, the compression is about 65 pounds per square inch.

A light car, with the consequent ability to run throttled a large part of the time, was obtained by the use of a very compact planetary gear on one end of the engine shaft, direct chain drive from that to the axle, and very flexible springs to save the frame and body from racking. That the system thus evolved has been successful goes with-



FRANKLIN FOUR-CYLINDER VERTICAL MOTOR, SHOWING TUBES FROM AUXILIARY EXHAUST PORTS ON LEFT SIDE.



CREST SMALL SINGLE-CYLINDER MOTOR.

out saying in view of the great popularity and excellent performance of these little cars.

In the 1905 Franklin motors the bulk of the exhaust gases is discharged through an auxiliary port uncovered by the piston near the end of its stroke. This feature is quite similar to that employed in certain stationary engines, save that in the Franklin a check valve prevents the gases from being drawn back at the end of the suction stroke when running throttled. By using this device, which diverts the stream of flame which at full load would otherwise flow by the exhaust valve, it has been found possible to augment the normal speed, and therefore the power, some 20 per cent. over last year's rating. The present motor is geared to run 1,000 revolutions per minute at twenty miles per hour, and is capable of driving the car thirty miles an hour or a little faster on a level road.

In the larger Franklin motors, marketed this year for the first time, the construction is substantially the same, except that mechanically opened valves are substituted for the check valves in the piston exhaust outlets. These motors are arranged fore-and-aft, and a fan at the front of the bonnet, which is open save for a lattice-work screen, is brought into service to assist in the cooling. The 20-horsepower motor has cylinders, 4 inch bore and stroke, and runs 1,000 r. p. m. at 27 miles per hour, the maximum speed being given as about forty miles. The compression in this motor is about the same as in the smaller size.

The pioneer among the large air-cooled motors is the Knox, which for several years has been built in piston diameters of 5 inches, and strokes of 8, 7 and 6 inches. An extraordinary amount of cooling surface is given by the characteristic "porcupine" construction shown in the illustration. The cylinder walls are made fairly thick and are drilled and tapped 1-8 inch deep at close intervals all over their outer surfaces. Into these holes are screwed pins threaded over their whole length and projecting 2 inches. Over the cylinder head, where the greatest cooling effect is necessary, there are ten pins in each square inch of cylinder surface. On the cylinder walls there are 9 and 8 to the square inch. The radiating surface of each of these pins, which are 7-32 inch in diameter over the threads, is calculated to be 3.3 square inches. On the average, therefore, the radiating surface is 29.7 square inches for each inch of cylinder surface. The screw threads on the pins serve the double purpose of increasing the area and catching the air. The pins are of steel, this metal having been adopted by the company after trying copper, brass, and even aluminum, all of which failed on account, apparently, of the difference in coefficient

PORCUPINE-LIKE CYLINDER OF KNOX ENGINE.

of expansion between them and the cylinder walls.

The location of the cylinders is such as to give the best natural draught. The engine lies horizontally fore and aft below the body, with the cylinder head directed forward, and the natural air current is assisted by a small fan discharging upon this cylinder head. With this arrangement there can be no eddy currents of air such as occur behind the cylinder of a vertical engine. In the case of the two-cylinder engines, the rear cylinder is also cooled by a similar fan, and the makers state that, although it might be supposed that this fan ought to draw air from the cylinder instead of blowing upon it, practically it is found that the natural air current is an eddy in the opposite direction, which, therefore, is assisted by the fan. A point on which the makers lay especial stress is the absence of "pockets" screened from the direct current of cold air.

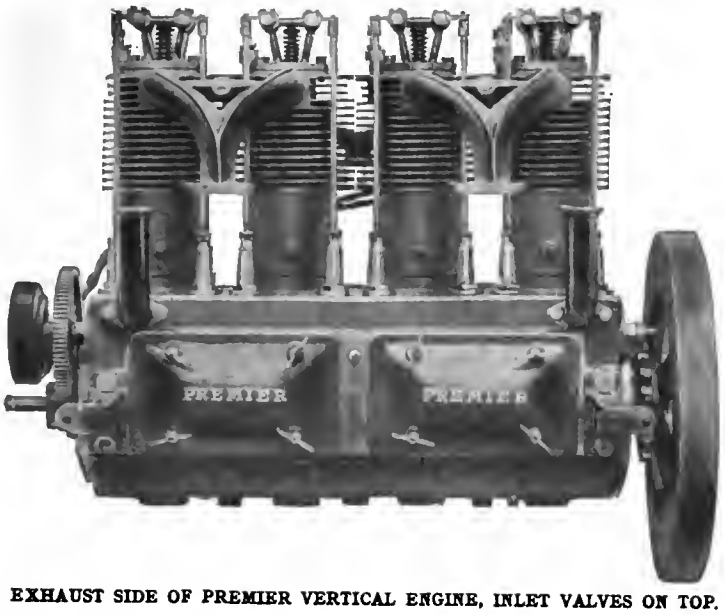
It appears that in this motor more use is made of direct radiation than in the ordinary type, since the heat is carried further from the cylinder by the pins and there is, perhaps, not quite the same amount of mutual radiation from hot surface to hot surface as in other motors. The value of the air currents is necessarily small as compared with the flanged type of motor, since the closely set pins will naturally prevent any considerable velocity from being attained by the air. The success of this motor is therefore due partly to radiation and partly to the extraordinary development of the cooling surface, combined with moderate air velocity maintained, when the car is running slowly or standing still, by the fan. It is worthy of note that the Knox is one of the few air-cooled motors which can be run for any length of time with the car standing; the reason being, of course, its comparative independence of a rapid stream of air.

The motors already described have been touched on at length as being the oldest of their respective kinds in this country. It is now in order to take up the newer types of motors, and to indicate where these owe their success to development along the lines indicated, and where new ideas have been brought in.

The motor of the Premier car has four cylinders 3 3-4 inches bore by 4 1-4 inches stroke, and is rated at 16-horsepower. It is located transversely in front, like the 12-horsepower Franklin motor, of which it is practically an enlarged edition. It has no piston exhaust, and the increase in cylinder dimensions is made practicable by the comparatively low compression used—about 40 pounds per square inch. This car likewise has a two-speed planetary speed-changing gear, but it is relatively larger than that of the Franklin and is located under the body, where it receives the drive from the engine through a sprocket chain to the rear axle.

The air-cooled motors of the Waltham-Orient touring cars may be called a devel-

CORBIN CYLINDER WITH PINS ARRANGED IN COMBS.



EXHAUST SIDE OF PREMIER VERTICAL ENGINE, INLET VALVES ON TOP.

opment from the small air-cooled motors of the Orient "buckboards." They are quite different in design, however, having mechanically-opened inlet valves arranged symmetrically opposite the exhaust valves. They have four vertical cylinders, and are made in two sizes, rated at 16 and 20-horsepower, respectively, with cylinders 3 1-4 inches bore by 4 1-4 inches stroke and 4 inches bore by 4 1-4 inches stroke. Both are ranged fore and aft under a bonnet with lattice front, and are cooled by a strong blast of air from a fan in front.

The especial feature of these motors is the form of their integral cast flanges, which on the cylinder walls are square in plan instead of circular, making practically a continuous series of horizontal ribs from front to back of the motor, and are very deep and thin. On the heads the flanges are vertical, and lie fore and aft so as not to obstruct the air current. The makers state that the normal speed is about 1,000 revolutions per minute, representing about twenty-two miles an hour, but that they can be speeded to 2,000 revolutions per minute when required. I am unable to give the compression, but assume it to be moderate. The transmission is by 3-speed sliding gears, driving direct in the high gear, and as the car is light it may be supposed that the motor runs throttled most of the time.

One of the new cars this season is the Corbin. Its designer, Mr. Bogart, may possibly have borrowed the idea of its radiating pins from the the Knox motor, but the details are certainly ingenious and highly creditable. Instead of handling each pin as a separate piece, a number of them are stamped together out of sheet steel and connected so as to form a piece resembling a steel comb. The back of this comb is inserted into a groove planed lengthwise in the cylinder, and the edges of the groove are pinned down tight against the comb, thus making a very rigid contact. To catch the air still further, the teeth are then staggered as the illustration shows. The cylinders, four in number, are of course separate, and in the largest size, or Model C, are 4 1-2 inches bore by 5 1-2 inches stroke, the motor being rated 24-28-horsepower. The valves work downwards in the cylinder head, being flush with the inner face, and are both mechanically operated. Over each pair of cylinders a 14-inch horizontal fan, driven by gearing, discharges a blast of air downwards upon the cylinders.

In a letter to the writer, Mr. Bogart states that the clearance space is 2 inches deep, which would give a compression of about 65 pounds gauge under full load. Mr. Bogart attributes the company's success with its air-cooling system largely to the care taken to avoid sharp angles in the combustion chamber, with their attendant liability to cause pre-ignition.

The Cameron is a light car with a 3-cylinder vertical motor placed fore and aft under the bonnet and driving through 2-speed sliding gears and a propeller shaft. The bore and stroke are respectively 3 5-8 and 3 3-4 inches, and the compression is given as about 60 pounds. A fan is employed, and the exhaust valve is so placed as to be blown upon by the fresh entering mixture, this being accomplished by working both valves horizontally in opposite sides of a chamber extended upward from the cylinder head, which is cast integral with the cylinder.

(To be continued.)

DISPOSITION OF ENGINE IN WALTHAM-ORIENT CAR, SHOWING LONGITUDINAL ARRANGEMENT OF RADIATING FINS ON CYLINDER HEADS.

There are few things more tantalizing to the man waiting for a delayed trolley car on a hot day than to see an automobile roll smoothly by with the chauffeur in charge and three or four seats empty.

An English concern has brought out a self-warming food can that is said to be exceedingly convenient for automobilists and all who tour, camp, cruise or picnic. The can is double or jacketed. The outer jacket contains a chemical substances which becomes very hot when moistened, and also a small receptacle filled with water. When it is desired to heat the contents of the can the receptacle is punctured and the water is allowed to reach the chemical. In ten minutes the contents are steaming hot. Soups, meats, stews and similar foods are put up in this convenient form.

European motorcyclists who are interested in racing are discussing the advisability of making a separate weight limit for tires. The weight limit for the complete machine, with tires on, is now 110 pounds, and almost invariably the lightest of tires are used in important races. If the weight limit were set at 110 pounds without tires, and then a reasonable weight limit were fixed for the tires, there would be no danger of competitors using inadequate pneumatics and fewer machines would be put out of the race solely on account of the giving out of featherweight tires.

Two Years of Road Improvement in Connecticut.

ONE of the most interesting chapters in the biennial report of the Highway Commissioner of the State of Connecticut for the years ended December 31, 1903 and 1904, recently issued, is the one on the "Fourteen Trunk Lines System." In this is given an interesting word picture of the origin of Connecticut wagon roads and of the main lines of through travel to which the commissioner urges that the most attention should be devoted.

In the early history of the state, writes Commissioner James H. Macdonald, the principal means of communication and transportation was of necessity by water, since the state was practically a wilderness and roads had not been broken; in fact, the whole road system began in visiting from one farm to another. It was only after the country began to be peopled and the land purchased and occupied along the water courses, so that all available water front was denied, that new settlers were compelled to go back and open up territory away from the water. Such settlers found it necessary to make trails and open wagon roads to their farms, thus unconsciously and crudely establishing the highway system. Such parts of the state were devoted at first entirely to farming purposes, but the needs of the farmers had to be supplied, and so villages were begun which later grew into cities. In but a few instances has the good judgment of the founders of such trade centers been at fault; it is self-evident that the large cities have been wisely located, since their growth has been rapid and they have become permanent railroad centers.

Rebuilding Fourteen Trunk Lines.

Although the main highways leading out of the cities have as a rule been improved within the territorial limits of the cities or of the townships in which they are located, the system has not been generally extended by the adjoining towns, mainly owing to lack of funds. Some system other than the one now in vogue should be inaugurated, it is urged, if the state is to have good continuous trunk lines within a reasonable time. Since the beginning of state aid in Connecticut in 1895 work made possible by the appropriations has been principally devoted to rebuilding fourteen trunk lines. These lines upon which improvements are now being made, extend through districts having a population of 851,743 out of a total population of 908,420, and pass through and drain the trade of 138 out of a total of 168 towns. Thus, very nearly the entire population of the state and a large proportion of her business is practically served by a mileage of 1,032 miles of wagon roads. The location of these all-important main lines is show on the accompanying map of the state.

In view of the foregoing, it is evident that these fourteen trunk lines call for improvement just as rapidly as possible, and to this end the commissioner recommends that a special appropriation outside of the regular road appropriation be made to be used exclusively for the completion of these lines. The expense of all improvements on this system should be borne by the state without town assistance, allowing the towns to enjoy their regular appropriations as heretofore, he says. The appropriation need not be large and could be used as a special fund for the purpose.

Although the amount of money appropriated every session by the legislature has been very liberal in the past, when it is distributed among many towns it does not accomplish very many miles of continuous highway under the present system by which the towns are allowed to select the sections of the road to be improved.

Boston Post Road Forms Backbone.

One of the oldest, longest and most direct of the trunk lines in the state is the Boston Post Road or turnpike, crossing the New York-Connecticut interstate border close to the shore of Long Island Sound and passing through Greenwich, Stamford, Norwalk, Bridgeport, Stratford, Milford, New Haven, Guilford, Old Saybrook, Lyme, Waterford, New London, Groton and Stonington. This road extends for 120 miles through the state, in sight of the sound most of the way, and, being very direct and touching such a large number of cities and villages, it is much traveled. The route of many a historic automobile endurance run and tour has been laid in whole or in part over the Boston Post Road, and it is one of the best known roads to Eastern tourists. Almost every one of the twenty-five townships it crosses is now at work improving this popular highway. Each appropriation is furnishing new links to this chain and it will not be long before the entire road is finished, from Port Chester, N. Y., to Westerly, R. I.

Ten south to north trunk lines extend across the state from this main east and west trunk line, and these ten roads touch nearly every large city in the state and are the chief arteries over which flow most of the products of the entire farming region of the whole community.

Trunk Lines Converge at Hartford.

It will be observed that these north and south roads start at sea ports and reach inland to the large trade and manufacturing centers of the state, and beyond into the thickly settled sections of the neighboring state of Massachusetts. Besides the Boston Post Road or Shore Road along the Sound, there are three principal east and west roads, one of which almost bisects the state, passing through New Milford, near the New York State line. and easterly through Waterbury, Meriden, Middletown and Willimantic and on toward Providence, R. I. The two others are further north and converge or bisect each other at Hartford. As Hartford is the capital of the state and the largest city, it is natural that most of the main roads should converge upon that place, which is central geographically as well as politically and industrially. So it is that no less than eight of the main trunk lines pass through Hartford.

When all of the roads indicated shall have been put in good condition from one state line to the other, Connecticut will rank second only to Massachusetts as a touring ground for eastern automobilists, owing to its proximity to the metropolitan district and its attractive scenery.

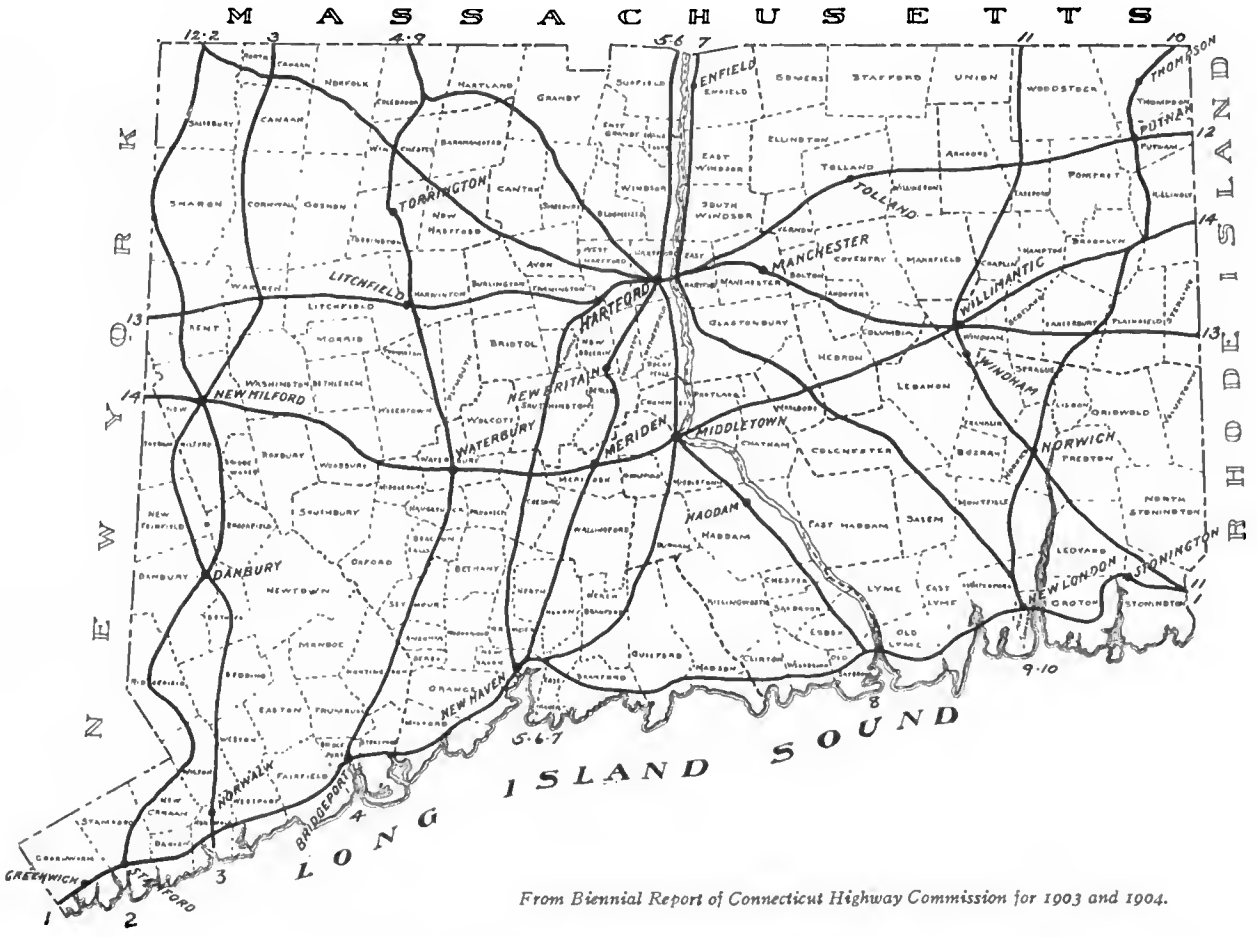
All Towns Want Apportionments.

Since the inception of the state aid system for road improvement in Connecticut ten years ago, a total expenditure of $2,012,775 has been made for road work under state administration and control. Of this aggregate amount the state appropriated $1,173,297, and the townships an aggregate of $839,478. Unfortunately there appears to be no clear statement in the report of the actual total number of miles of highway improved under state aid since 1895, although many tables are given showing the participation of the different towns (townships) in the appropriations each year. These tables show that the number of towns in the state that received an apportionment of the state appropriations were as follows for the different years: 1895, 77 towns; 1896, 83 towns; 1897, 85 towns; 1898, 74 towns; 1899, 114 towns; 1900, 154 towns; 1901, 142 towns; 1903, 132 towns; 1904, 132 towns. During the ten years that state aid has been in force in Connecticut, 35 towns have received apportionments for ten years, 19 towns for nine years, 21 towns for eight years, 15 towns for seven years, 23 for six years, 22 for five years, 8 for four years, 11 for three years, 8 for two years and 5 for one year. There are 168 towns in the state, and during the year 1903, for the first time in the history of the movement, all of the 168 towns made application for apportionments for road improvement out of the next appropriation, six towns that had never before made application having sent in requests.

Built 121 Miles in Two Years.

Summarizing the period of 1903 and 1904, the report states that when the applications for apportionments that had been received were opened it was found that 95 towns had asked for $9,000 each and 37 towns asked for amounts ranging from $500 to $6,000, making a grand total of $1,049,500, which was $422,626 in excess of the state appropriation. These statements clearly indicate the success of the state aid system in the state of Connecticut. To make the allotments come within the appropriations the towns asking for $9,000 were allowed but $5,670.

At the close of the season of 1904, as the result of two years' work, 220 contracts had been let and 342 sections of road improved, calling for the expenditure of $504,593.93, the total number of miles of highway improved having been 121. This represents work finished, accepted and paid for at the end of 1904. In addition to the foregoing, contracts had been let for the improvement of 183 additional sections, calling for an expenditure of $387,471.38, which, when finished, will accomplish the improvement of 74 additional miles of road. Many of these contracts had been nearly finished when the report was written. There was then a balance of money amounting to $257,574.19 to be devoted to the work after the opening of this season, which was available under the last appropriation. This balance will pay for approximately 59 miles of road building, so that the total number of miles of good road that will have been paid for by the appropriation of 1903-1904 will be 254, which is to be added to the number of miles improved before January 1, 1903.



From Biennial Report of Connecticut Highway Commission for 1903 and 1904.

MAP OF CONNECTICUT, SHOWING FOURTEEN TRUNK ROADS WHICH ARE BEING IMPROVED UNDER STATE AID.

Use of Automobiles Discussed.

Much of the Commissioner's report is devoted to the proper ways for constructing and maintaining different kinds of roads, the building of culverts and bridges, and similar matter of particular interest only to the road builder. However, there are at least two subdivisions of chapters that are of especial interest to automobilists. One has reference to the use of automobiles on the roads and the other to guide posts. Regarding the former Commissioner Macdonald says:

"The reception accorded the advent of the automobile on our roads by the people of Connecticut who reside outside of the cities is practically the same as they extended to the introduction of the bicycle, and the objections offered are very similar, namely, fast driving and careless attention to the rights of others using the roads. The abatement of the abuse of the highways by some bicycle riders was brought about in part by legislation and local town rules; but the principal reason was from the fact that those who rode the bicycle used more care while riding over the roads of the state and the public in general adopted bicycles as a means of locomotion for business and pleasure. * * *

"The objections offered to the use of automobiles on the highways of our state will rapidly disappear if the drivers of autos are more careful in the use of their cars on our roads, and also when the machines are in more general use than they are to-day. Already horses are not so easily frightened and a great many earlier objections to the use of the highway by the automobile are fast disappearing. * * * The only apparent injury to our roads arising from their use by automobiles is found on roads of macadam construction, and is due to the fact that the rapidly moving car produces a draft which creates a suction sufficient, when the road is dry, to remove the screenings from the surface of the road; this results in leaving the stone without protection. The splinter treatment suggested for the care and maintenance of macadam roads will remove this objection.

"Certainly automobiles have demonstrated that they can be made very useful, both for business and for pleasure, and inasmuch as they have been so generally adopted I think it would be wise for us to accept them as a part of the traffic we will have to have on the highways in the future. Proper legislation and obedience to the rights of others using the roads, together with a careful handling of his machine by the driver, will bring the automobile into popular favor. The tires used by the automobiles are of no injury to our roads, and when objections which are offered to-day have been eliminated these machines can be made very useful servants to do our bidding, whether it be for business or pleasure."

"Splinter" Treatment of Worn Roads.

The "splinter" method of treatment to which reference is made consists in spreading over the surface of the road a "very light covering of splinters or chips of stone, ranging in size from 1-2 inch to 3-4 inch in their longest diameter, free from dust."

The stone, when applied, furnishes the necessary protection to the road on its first application, and the action of horses' hoofs and wagon tires pulverizes the fragments, the small particles broken off falling down between the chips to the surface below, where they are protected from the heat of the sun and the action of the wind by the splinters above, and soon begin to act as a binder to cement the loose stones to the old surface, retaining the moisture. No rolling or sprinkling is necessary.

URGES ERECTION OF GUIDE POSTS.

"Now that we are inviting people to travel over our system of improved highways," writes Commissioner Macdonald with reference to guide posts, "it would be an added inducement if, when they come to travel over our roads, they could find a guide post at every fork and intersecting road." (To this every automobilist will give his hearty "amen.") "No small amount of inconvenience and vexatious delays are caused by town officials neglecting to erect and maintain guide posts. Some years ago the wheelmen of our state made a personal and united effort along this line, and erected hundreds of guide posts which have been invaluable to travelers. Time, however, has made sad havoc with them, and they have become weather-beaten or broken down, and hundreds of our cross roads have no indicating mark to tell strangers their objective point."

The Commissioner then calls the attention of the reader to the mandatory guide post law designated as Section 2,045 of the General Statutes, which requires the selectmen of every town to erect and maintain at every place of intersection of highways a substantial post not less than eight feet high, bearing near its upper end the plainly marked name of the next town or place, and of such other town or place of note as the selectmen think proper, to which the road leads, the number of miles to the same, and the figure of a hand or of an arrow indicating the direction. A penalty of $5 fine against the selectmen for every offense is provided for neglect or refusal to observe this law.

Concluding his remarks on the subject, the Commissioner says: "If the town officials will take this matter up and install guide posts on the main highways of the state they will not only confer a great favor to all who may have occasion to use the roads, but in addition will assist in perfecting the improved highway system, so that in everything in every way connected with the comfort and convenience of those who may have to use our roads the state of Connecticut may occupy its proper place in the front rank of modern methods of highway improvement."

Do not neglect your brakes. They are liable to become worn as the season advances, and may fail you unexpectedly when they are most needed unless you keep them well adjusted.

Temporary Repairs on an Inspection Tour.

BY G. A. RAGE.

THE Manager of the P. D. & Q. leaned back in his office chair and meditatively re-read the letter he held in his hand. "Well," he said, after a pause, handing the letter over to his assistant, "I guess I'm up against an exploring expedition in the territory the new branch line passes through, and I don't just see how it's to be done."

He got up and studied a big map on the wall with an expression of dissatisfaction that increased momentarily.

"It's a nice prospect," he muttered, half to himself. "Get up at five in the morning and catch a slow train; spend the day changing from trains to trolleys and from trolleys to buggies so as to get a notion of the long-distance line by looking at a few of the places where it comes within reach of a railroad station or a trolley line. Get home about midnight, done up, covered with dust, and without any decent notion of the line, too tired to remember what things looked like—— Say, though, what's the matter with doing it in an automobile?"

"Nothing," replied his assistant, "except that we haven't an automobile. Of course, we might hire one, or——"

The rest of the sentence was cut short by the Manager. "Hold on! I know what I'll do—borrow one."

HE BORROWS A CAR.

In a moment the telephone wires were carrying a conversation between the Manager and a friend, who was glad to place his car at the Manager's disposal, the latter agreeing to place the handling of the car in competent hands. After more telephoning, arrangements were made for an early start the following morning, the Manager to be accompanied by his friend the Amateur Chauffeur, the Civil Engineer and one of the Directors. The Amateur Chauffeur was to handle the car.

Linen dust-coats, goggles, rain-coats in case the weather behaved badly, and a camera were got ready and loaded into the car when the party assembled. A couple of jabs at the carbureter and a swing of the crank, and the motor commenced puffing quietly; a moment later and the car was under way, the Amateur Chauffeur at the wheel, the Manager beside him, while the Civil Engineer and the Director occupied the tonneau seats.

A short ride through the city streets and a still shorter trip on a ferry brought the car to the real beginning of the route to be covered.

The car was a good-sized, roomy machine with four-cylinder, vertical motor, sliding-gear transmission giving three speeds, and drive by side chains. The motor did not seem to be in the best of condition. "It needed snap and ginger," as the A. C. expressed it. However, it ran without requiring any attention, and the car sped along the smooth road at an exhilarating rate, about a hundred yards an hour within the legal speed limit. The weather was perfect, and everyone was in high spirits.

"Hello!" suddenly exclaimed the A. C. "Something doing ahead there." In another couple of minutes it was seen that a fine-looking, big car was standing by the road surrounded by a group of worried men, who alternately stood and made suggestions and dived into or under the car; one was permanently engaged, apparently, on some job that necessitated a restful attitude on his back in the dust. Four wide grins overspread four faces in the Manager's car.

"Guess our car isn't so bad, after all," commented the A. C., and everyone agreed with him. A bend in the road, and the stalled car and its corps of anxious attendants were shut from view.

"Great!" said the Manager—"great! There's nothing I know of that's equal to——"

WHEN THE AIR WENT OUT.

Fiz-z-z-z-z! S-s-s-s-s! And then bump, bump, bump as the right rear tire went flat and the rim felt the road. The car was quickly stopped at the side of the road, and the A. C. and the C. E., who were both experts, began to peel off their coats in a manner that indicated considerable familiarity with the situation. The Manager took up a position of advantage, so that he could watch the operations of his friends, and the Director assumed a sympathetic expression and stood where he could see the bend that hid the stalled car.

The A. C. examined the tire and had just announced a blow-out in the shoe when the C. E., who had been rummaging in the tool-box, announced cheerfully that there was nothing in sight to mend the shoe with. A spare inner tube was available, but with a hole blown through the shoe the tube would have been useless.

The A. C. began to rack his brains in mentally figuring how far four men could push a heavy car; the Manager cast his eye over the landscape in search of a house which might, perchance, contain a telephone, and made sundry remarks about "repair wagons" and "solid tires" and so on. The C. E. had meantime been examining the burst inner tube.

"Would you look at that!" he exclaimed. They all would, and did look.

RUBBER LIKE WET PAPER.

The tube was so weak that it parted at a slight pull like wet paper, and the only wonder was that it had not let go long before. Everyone said something appropriately emphatic, and then all turned to the task of finding something with which the shoe could be patched. The A. C. sug-

gested a piece of the Manager's heavy raincoat. "They always put good stuff in a good coat like that," he remarked. The Manager, however, did not see that his duty lay that way, and the coat escaped.

Finally an old lap-robe of waterproof cloth was discovered, and though the material was of doubtful strength, a piece of it was ruthlessly hacked out, doubled and laid so as to cover the hole in the shoe, without cement, for the simple reason that there was none. The A. C. got out the beautiful, polished brass pump, and went through the motions of pumping up the tire; but nothing happened, except that the motive power got very much overheated. So the A. C. desisted, remarking in a tone of suppressed emotion that the pump was "on the blink," and proceeded to take it to pieces. It was found that the piston was so tight in the barrel that no air could pass the cupped leather, which acted as a valve, on the up stroke. A couple of pinches with the pliers remedied this, and the pumping proceeded laboriously, the "internal resistance" being great.

Mending the Air Pump.

"Why don't you oil it?" asked the Manager. "You'll have your piston rod siezing in another minute." "No oil," grunted the busy A. C. Nothing daunted, the Manager inserted half his person under the car for a moment, and emerged with one finger liberally coated with thick oil gathered from the drippings from the gear case. This was applied to the rod with immediate results, the A. C.'s temperature dropping several degrees in a few seconds.

The pump rod projected so far through the piston that the latter could not travel to the bottom of the barrel, so there was a clearance space that considerably reduced the efficiency of the pump, and considerably increased the "man-power" required to operate it. This could not be remedied without tools, and so was endured with all possible calmness.

While tire repairs were under way the Manager and the Director hauled out the camera (taken along to record certain road locations), set it up and focused it on the perspiring martyrs, telling them to look pleasant, as he wanted a photograph to show how they had stopped a car in the frizzling sun to repair a tire. They very kindly looked as pleasant as the circumstances would permit, and were duly photographed, but—the negative has not yet been developed.

The Jack Gave Out.

During the tire repair it was discovered that the tool-box contained a jack, a pair of pliers, a monkey-wrench, the beautiful pump and two tire-removing tools; the "crew" carried each a pocket knife, and one had a dinky little typewriter screwdriver which he persistently offered, but no one could use. The pump had to be mended before it could be used, and the jack went out of commission as it was being removed from under the axle. There was no tire-repair outfit, and nothing that could be used in case of further tire trouble. Everyone joined in the remarks that were made with reference to the lack of foresight of the owner of the car.

Finally all the stuff was collected and loaded, and everyone piled into the car and away they started, with many misgivings as to the stability of the right rear tire. It held on, however, and gave no further trouble throughout the day.

The rest of the forenoon was devoted to making the necessary visits to various widely separated points; and at about 1 o'clock a stop for lunch was made at an attractive wayside inn, where a good wash removed the traces of labor, and a hearty meal, eaten with the appetite of automobilists, made the incident of the morning seem like a good joke.

Motor Needed Tuning Up.

After luncheon a stop was made at a garage near the inn and several little things about the car attended to. By this time it had been discovered pretty conclusively that the man who owned the car was not in the habit of looking very far ahead. The lack of tire-repairing materials had already been thoroughly discovered; and it was next found that the lubricating oil tank was practically empty; that the rear hubs were uncomfortably hot to the touch for want of lubrication, and that several nuts were loose. Also the engine was badly in need of tuning up; it ran only fairly well, and one of the four vibrators was working very feebly.

After taking stock of these things the A. C. decided that in addition to cylinder oil, gear-case oil and oil for the hot hub bearings, it would be wise to take on some gasoline. "Ain't got none, sir," was the cheerful response of the garage man. "Sold the last of it not five minutes ago."

"Good moral," said the Manager. "Take gasoline when you are sure you can get it. If you take a chance on getting it at the next place you'll get it the way we're getting it right now." And all the rest made mental notes for future reference.

While the A. C. was attending to the tuning-up process considerable amusement was occasioned by the antics of the chauffeur of a big car that had been stopped at the garage. The man started his motor with a swagger, lounged into his seat with a "just-watch-me-do-it" air, and threw in his high gear. Then, with a supercilious glance around, he proceeded to forget that there was a clutch pedal on the car.

Clutch Gripped Fiercely.

The clutch banged in and gripped fiercely; the car gave a couple of convulsive jumps, every wrenched joint in the body creaking; the anti-skid bands on the driving wheels dug two ruts in the gravel, and away bounced the car, the helm hard a-port and the machine climbing the bank at an angle of fifteen degrees.

It vanished in a cloud of dust, and the impression left behind was that the chauffeur was altogether too clever to be left alone in a good car.

With the engine running much better and the car seeming to appreciate the attention given it, the road was taken once more and many miles traveled comfortably and speedily. While speeding along a smooth, shaded road, the car running very quietly, someone noticed a slight hiss-hiss-hiss from the motor. Like most noises in a gasoline motor, this one was difficult to locate, and everyone took a crack at guessing where it came from. The noise increased, however, until it became evident that something must be done.

Find a Gasket Blown Out.

The A. C. stopped the motor, and the ship's company got out to make a survey, and discovered that the gasket used to make a tight joint between the valve chamber and the flange on the end of the gas supply pipe had blown out, a series of sharp hisses resulting.

"What have we got to make a new gasket out of?" inquired the A. C., looking round at the other members of the party as if he expected to see them produce an assortment of packing of all kinds. Instead, everyone made for the car and a search was made for packing. Nothing was found.

A tool-box, hitherto unnoticed, was opened and found to contain a choice assortment of old junk, each piece of scrap iron being carefully isolated from its fellows in a neat little compartment. Old bolts and nuts, scraps of wire, bent and headless nails, small castings, invalid spark plugs—all were tenderly laid away in the little boxes, but nothing that would do to make the joint. Not even a piece of string could be found.

The Usual Crowd Collected.

Meantime a crowd of young hopefuls collected, coming, seemingly, from nowhere or out of the earth, and watched the fun, occasionally advising the acquirement of a horse, or making themselves famous by daring to grab the bulb, which was attached to the side of the car, and blow the horn.

After some time a passing farmer was hailed, and he produced a piece of tarred hemp, commonly called marline. A strand of this was soon made into a gasket, put in place and the flange tightened up, though with many misgivings, for the seating was not cooled by a water jacket. "No water within half a kilometer of it," as the A. C. remarked. The motor was cranked, and away the car went, all ears on the stretch for a repetition of the hissing.

There was no sound for as much as a mile, when the hiss-hiss-hiss again commenced, louder than ever. Again the motor was stopped, and again there was a council of war by the roadside. This time the stop was made in a little village, and the possibility of securing something to work with brought out a number of suggestions from

all the members of the party. Each man gave his idea and stated his reasons for believing it would do, and supported his opinion with such good reasons that everyone began asking everyone else, "What do *you* know about gaskets?"

Every Man an Engineer.

It then developed that, curiously enough, every man in the party had had an engineering training—not all in the same line. Immediately a new common interest was established between the four, and only the pressing need for a new gasket cut short an immediate exchange of experiences.

The Manager started the search, making for a store, from the upper rooms of which issued a varied collection of sounds which, the A. C. said, stood for music. After a short time the Manager came back with a handful of asbestos in the form of a flaky powder (stove asbestos, the dealer had called it), which he suggested making into a sort of dough with oil and putting in the joint. He explained, however, that he had not much faith in the scheme; and, the others agreeing with him, the powder was abandoned.

Nothing daunted, the courageous Manager started out again, and this time returned with *almost* the right thing—a piece of asbestos lamp wick. It was the fag end of a large circular wick, but unfortunately was so narrow that a packing ring could not be cut out of it, and an attempt to force the material into the form of a gasket failed because the stuff could not be "bent" edgewise, so to speak.

Copper Wire Was Suggested.

Copper wire was suggested, but the idea was abandoned—first because of the difficulty of joining the ends of the ring without tools, and secondly because there was no copper wire available.

So the Director went to the grocery store where the Manager had found the wick, having conceived the idea of using sheet lead, which, he thought, should be plentiful in a store where tea was sold. So it was; he got a square yard of it for the asking. When the young man in the store started for the upper floor, where the tea was kept, he suddenly remembered that there was no one in the store except the Director, whose duster and cap betrayed the fact that he was an automobilist. Evidently that was enough, for the young man went to the rear door and, in a gigantic whisper, said:

"Say, ma, come on an' watch the store a minute." Ma declined, being busy cutting someone's hair; so another great whisper: "Tell Billy to come. Hurry up; the feller's waitin'."

Presently Billy came, and sauntered in with an easy air that was very comforting to the Director, inasmuch as it proved to him that Billy's suspicions were not so serious as to be shown openly.

"Darn mean things, them," commented Billy, affably, referring to automobiles; "breakin' down out here every day. We ain't got no use for them out here; come to the way of thinkin' that they're no good at all."

The Director Tells Billy.

The Director's endeavor to convince Billy that the number of automobiles that got "stuck" was very small in comparison to those that went past in good order and were therefore forgotten was cut short by the entrance of the suspicious youth with the "tea silver," as he called it, for which he would not accept anything.

With the "lead" in his grimy hand, the Director went back to the car in triumph, and made a beautiful gasket of several thicknesses. But, alas, there was another blow-out before the car had gone a quarter of a mile, and another stop. The "lead" had been melted by the heat and blown out through the joint in a silver cloud on the adjacent cast iron.

When it was found that the third leak was in exactly the same spot as the other two it was realized that the seating was warped by the heat. Rough-and-ready packing being impossible under the circumstances, the A. C. took a good gasket from a similar joint on another cylinder and put it in the troublesome spot. Then the gasketless joint was cleaned, covered with thick oil, and screwed down, metal to metal.

This leaked a little, but it was somewhat better than the original leak in the other joint, and so was allowed to go as the best way out of the bother; and the party got home without further difficulty, the continual hissing being drowned most of the time by opening the muffler to help the motor up the steep hills.

On the Way Home.

The return journey, however, held a new pleasure for the automobilists, for they had discovered a subject in which all were interested intensely; and a general exchange of ideas and experiences took place. Naturally, the talk turned to the subject of break-downs, and many curious stories were told of accidents to machinery on sea and on land, in steamships, railroads, automobiles, elevators, and even trolley cars. Had it not been for the trouble on the road, due to the short-sightedness of the owner of the car, the four men might never have discovered that all had the same technical interest in the automobile.

Notwithstanding the trouble with the tire and the packing, the car covered a distance of about seventy miles at a reasonable rate of speed, doing work that could not have been done by a horse-drawn rig in less than two days of hard, tiring work. The members of the party had a jolly day in the country, the work being turned into pleasure, and reaching home in time for dinner in the evening, feeling fresh and ready for anything—one of the advantages of this mode of traveling.

A few weeks later the manager called up the A. C. on the telephone. "Hello," he said. "How would you like to go on another exploring expedition? The surveyors are at work, and I want to have a look 'round."

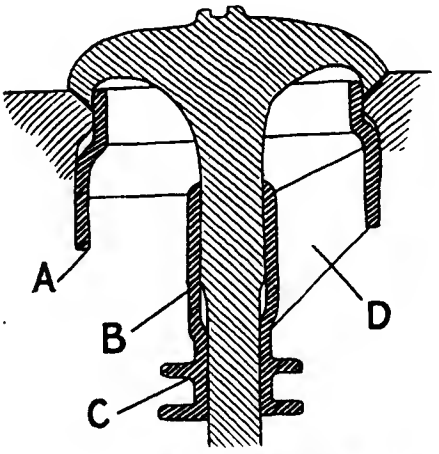
"Fine," replied the A. C.; "but where are you going to get your car this time? I'd like to make a little inspection tour of the tool box before you start."

The manager chuckled. "Don't worry; we got wise and bought a car of our own."

Decauville Valve Throttle.

The new method of regulating the motor speed by varying the effective opening of the mechanically operated inlet valve which has been adopted by the makers of the Decauville cars is especially interesting because it does not involve the use of variable-profile cams and is not effected through the gearing.

The valve itself is of peculiar shape, as will be seen in the engraving. A downward projecting rim or lip gives the mushroom



Sketch of Section of Decauville Valve Opening Regulator.

an inverted saucer form. The inner surface of the edge is vertical for a short distance, and fits snugly, though slidably, over the outside of the light annular casting *A*, which is so fitted into the valve opening that it can be slid up and down. A tube *B*, carrying a collar *C*, is a sliding fit on the valve stem, and is connected with the ring *A* by light arms *D*, all the parts marked *A*, *B*, *C* and *D* being, in fact, a single piece. A fork is fitted to the collar, and is operated by a lever from the outside.

It will be seen that raising the ring *A* by means of the outside lever acting through the fork and the collar *C* will reduce the effective opening of the valve, regardless of the lift of the cam, while the full opening of the valve will be available when the ring is brought to its lowest position with its upper edge flush with the lower edge of the valve seat. Thus the valve acts as a throttle, regulating the flow of gas to the cylinder, while the valve mechanism remains unaltered. The lever may be operated by hand or may be worked by a governor on the engine.

National Circuit Meet at Cleveland.

Rain Causes Day's Postponement—Kiser's Serious Accident Mars Day's Sport—Unusual Attendance.

Special Correspondence.

CLEVELAND, Aug. 12.—The opening day's races of the grand circuit meet given by the Cleveland Automobile Club at Glenville track was marred by a serious accident which resulted in Earl Kiser, the well-known driver of the Winton *Bullet*, being maimed for life. A heavy rain Thursday night necessitated the postponing of the opening races to Saturday. The attendance was the largest ever seen at Glenville, and the presence of a number of well-known drivers, together with the fact that the track was reported to be fast, foreboded record-breaking sport, but the terrible accident at the start cast a damper on the day's programme. Drivers as well as spectators were plainly depressed, and the former showed no inclination to go after records.

A few minutes before the hour for the opening race Earl Kiser with the *Bullet* came out for a warming up. He made one circuit at moderate speed and received a great ovation as he passed the stand. The spectators were listening to the musical selection being rendered, and Kiser was making his second round when, at about the center of the lower turn, the car was seen to swerve slightly from its course, and a second later it crashed through the fence on the inside. Jardine and McLaughlin in a Royal were not far behind, and quickly went to the scene of the accident. The *Bullet* had torn down more than seventy feet of fence and turned partially around, and the front wheels were buried to the hubs in the soft mud. Immediately the gasoline tank was crushed and the car became a mass of flames. Kiser was evidently struck by a post or cross piece of the fence, and the car going down the slight depression and stopping suddenly in the mud caused him to be thrown some ten feet from the car. Hundreds of persons hurried to his rescue, while others turned their efforts to extinguishing the flames in the burning car. A runabout brought two physicians to the scene and ambulances were called. Earl's left leg was found to be crushed to a pulp, and he was bleeding from a score of other injuries.

Among the first to reach the injured driver was Pat Hussey, Kiser's trainer in the old bicycle days. He did much to aid the physicians. It seemed an age before the ambulance arrived, and every now and then Kiser tried to sit up, saying he wanted to see his injured leg. Hussey held him down by main force, repeating several times, "It's all right, Earl; you have been hurt worse than this a number of times in the bicycle days."

He was hurried to the nearest hospital, and word was soon brought back to the anxious crowd that it had been found necessary to amputate the leg above the knee. His right shoulder was dislocated, and an arm broken, and he had received numerous wounds on his head and body.

After the wreckage had been cleared away it was decided to proceed with the races, and while some of the performances were interesting, all enjoyment had been swept away, not only by reason of Kiser's accident but also from the fact that there would be no chance for even competition in the big races, Kiser being considered the only one present who could compete evenly with Webb Jay and his White steamer.

Jay, of course, had things his own way in the heavy classes, but Herbert Lytle with the new medium-weight Pope-Toledo, and Charles Burman, with a stripped Peerless, afforded good sport.

The curtain raiser was for cars weighing 1,432 pounds, or less. There were but two entries—Lytle, Pope-Toledo, and Dan Wurgis, *Reo Bird*. Lytle took the lead from the start, and finished a quarter of a mile to the good. Time, 5:18 2-5.

In the five-mile race for stock touring cars there were three starters. W. L. Marr, Buick, led the first few miles, and then he was passed by R. E. Hawkins, Gaeth. Marr came up strong down the stretch and won by three lengths. Time, 7:25 3-5.

Next was the most exciting race of the day—the free-for-all for the Diamond cup. There were but three starters—Jay, Burman and Lytle, the latter appearing in a touring car in consequence of a slight accident to his racer. Lytle was, of course, left behind at the start, but to the surprise of every one Burman got a better start than Jay and opened up a wide gap. Burman seemed to be making the turns better, while Jay made gains on the straights. The duel down the stretch on the finishing mile was the most interesting event of the day. Jay won in 5:16.

There was considerable delay in starting the race for stripped touring cars. Burman, the Peerless driver, protested that Lytle's new Pope-Toledo was a racer and not a touring car. The Pope-Toledo people exhibited drawings of a touring car fitted with this same frame and mechanism, but that did not satisfy Burman. Referee George L. Weiss insisted that Burman should drive, stating that he would consider the protest later, to which Burman finally agreed. Lytle and Burman led the others from the start, the latter having the advantage for the first mile. Just after passing the stands on the second mile, Lytle shot in as they were making the turn, gaining the pole. The rules say that no driver shall take the pole from another unless he is two lengths ahead, and accordingly Burman entered another protest, claiming Lytle was not the required distance ahead. On the fourth mile Burman's car went bad, and Lytle won easily. Robert Jardine, with a Royal, was second. Time, 4:59 4-5.

WINTON BULLET AFTER ACCIDENT IN CLEVELAND IN WHICH EARL KISER LOST A LEG.

C. C. Ferguson won the club championship in a Pope-Toledo from M. B. Grover, in a Royal. Time, 6:27 3-5.

The first heat of the $500 Cleveland Club Derby was easily won by Webb Jay, who ran away from Lytle in a Pope-Toledo, the latter quitting in the fourth mile. In this event Jay made the third mile in 57 seconds, the fastest mile of the day. Time, 4:46 1-5.

The second heat of the Derby brought out only Burman and Wurgis. Wurgis set the pace for four and a half miles, and then Burman won. Time, 5:23.

As a special event, Lytle with his Pope-Toledo went after the five-mile record for cars of the 1,450-pound class, and succeeded in making it 4:57 3-5.

Monday's Events at Cleveland.

Special Correspondence.

CLEVELAND, Aug. 14.—About 2,500 attended the races Monday. Rain interfered with the pleasure of the day, keeping many away and stopping the races about the middle of the program. There were three quite exciting events. Four cars started in the five miles for touring cars with tonneaus and three passengers. Charles Soules, Pope-Toledo, and Robert Jardine, Royal, put up a pretty race for four miles, Soules leading nearly all the way but losing ground at every turn, only to gain it on the stretches. On the last mile Soules' car

Ned Broadwell, "Rain Maker," Who Has Spoiled Race Meets at Many Tracks and Whose Non-Attendance Cleveland Promoters Tried to Buy.

commenced missing fire, and Jardine passed him, winning by about 200 yards. Time, 6:05 1-5.

In the five-mile national championship there were four starters—Jay, Lytle, Wurgis and Burman. Wurgis had the pole. As usual, Jay got off fast, gaining about two hundred yards in the first quarter, with Lytle second and Burman trailing in the rear, his machine running badly. After a mile, however, he picked up in fine shape. On the third mile the steamer went bad and finally came to a stop, Lytle gaining a good lead over Burman, who had passed Wurgis. On the fourth mile Lytle's car commenced missing fire, causing him to lose speed, Burman overhauling and passing him. Burman continued to gain, and won in 5:15 4-5.

Barney Oldfield and the *Green Dragon* were greeted with rounds of applause when he came out for the five-mile exhibition for Kiser's benefit. With his head bandaged and a broken bone in his shoulder, which he had declined to have set until he could give this exhibition, Barney was in no shape for record-breaking work. He scored the fastest five miles of the meet, though he did not come near the record. Time, 4:45 3-5.

Two events were omitted, and the final of the ten-mile Cleveland Derby was made five miles, as it had started to sprinkle. In order to make it interesting, there being but two starters, Jay simply toyed with Burman, allowing him to gain and then running away from him as he pleased. A few seconds after this race was completed it commenced to pour, and the remaining events were called off.

This afternoon it was announced that Kiser's wounds were healing as well as could be expected, and that he would probably be able to leave the hospital in two or three weeks.

A number of prominent automobilists met here this morning to arrange for the benefit meet which Oldfield offered to hold for Kiser. The meet will be held at Dayton, Kiser's home city, either August 26 or September 2. A number of prominent drivers have agreed to compete, giving their services for the benefit of their friend, among them being Webb Jay, Charles Burman, H. H. Lytle, Carl Fisher and Robert Jardine.

Buying Good Roads with Drinks in Kansas.

Special Correspondence.

KANSAS CITY, Aug. 11.—Every time you take a drink in Kansas City you help the cause of good roads. Zeal for good roads should not be an excuse for increasing the patronage of the 600 odd saloons in the city. But the fact that Jackson county, in which Kansas City lies, either has a population anxious for good roads or that its climate is very conducive to thirst is shown by the amount of money spent on macadam roads alone in the last ten years. This aggregates the considerable sum of $1,569,000, and the saloons pay the bill.

Since the present "dramshop law" was enacted, Jackson county has built approximately 400 miles of good macadam roads, at an average cost of $4,000 a mile. This means an expenditure of $1,600,000 drawn from a community whose population does not exceed 300,000.

If one looks at the map of the county, it will be seen that the roads radiate to all points and touch all of the more important towns. Often they make "jogs" for unapparent reasons. The roads have, nevertheless, been built with a definite system in mind, despite a certain kind of "grafting," and eventually all roads in the immediate vicinity of the city will be macadamized, so that the country will be more like the cities. Further away the plan is to build and connect long arteries, which the farmer, bound for market, can reach after a short drive over the ordinary earth roads.

Each dramshop in Jackson county pays a county license of $500 a year, in addition to the city license. Two-thirds of the county tax goes into the special road fund, from which is drawn the money to build macadam roads. Every saloon, therefore, contributes $333.33 each year to make travel easier for conveyances, even if it may not have the same effect on the individual.

The amounts spent on macadam roads each year since 1895 are as follows: 1895, $90,000; 1896, $146,000; 1897, $129,000; 1898, $126,000; 1899, $177,000; 1900, $139,000; 1901, $139,000; 1902, $157,000; 1903, $182,000; 1904, $190,000; 1905 (to date), $94,000.

In addition to this amount, the general road tax of 15 cents on the $100 valuation is spent in improving the highways. This latter fund, however, is used exclusively for dirt roads, and hence is not included in the totals given above. This tax for 1903 amounted to $28,641.02, and has been in the neighborhood of $25,000 for five years or more.

The working of the dirt roads, while hardly so satisfactory as it might be, still compares favorably with similar work in other states. The money is spent under the direction of road overseers, who take considerable pride in their districts. As a result the dirt roads are generally passable, and if they are not kept in good condition complaint is made at once, for the farmers realize that they are paying for good roads and they intend to have them.

One great help to the tourist, and to anyone who finds bridges or their approaches in bad condition, is the fact that all these structures are numbered. If one is in bad repair it can be reported to the county court by number. This method is very simple, and does away with much red tape in connection with the maintenance of the roads and bridges.

Its roads are a source of pride to Jackson county. The fight may have been somewhat hard at first, but the absolute success of the "rock road" has turned every inhabitant of the county into a good roads advocate.

In long white lines, radiating from almost every town, these macadam roads cross and recross the county. They are not wide; the standard gauge is but sixteen feet, except on curves and dangerous places, where sufficient room is given to provide for possible accidents. But as a general thing there is just room enough on the roads for two vehicles to pass comfortably. Usually there is a grassy slope on each side, which acts as the best possible kind of drainage ditch, preventing water from washing away the sides of the road surface.

In other places dirt roads flank the macadam, so that the tired trotters can rest their feet on the soft soil. Such places have, of course, no particular interest for the motorist, but they double the width of the road in dry weather.

Grosse Pointe Two-Days' Racing.

Special Correspondence.

DETROIT, Aug. 10.—It was not an Oldfield meeting at Grosse Pointe this year by a good deal. Oldfield has ever been the auto idol of the Detroit public, but this time he fell from the pedestal. The first day of the meet he was badly beaten by Webb Jay in the White racer, and on the second day an accident threw him through the fence and deposited him in Harper Hospital. That Oldfield was not seriously injured—and also Dan Wurgis, the driver of the Reo *Bird*—is little short of a miracle, but within three days Barney was well enough to leave the hospital.

The Grosse Pointe meet this year was a big success considering that rain forced a postponement from Friday and Saturday, August 4 and 5, to the following Monday and Tuesday.

Good weather favored the racing Monday, and more than 5,000 spectators gathered at the track. It was the last event of the day, the Oldfield-Jay struggle, that held them; but the *Green Dragon* was too slow for the *White Ghost,* and Barney was beaten in a walk in 9:36 3-5 from a flying start. For the first six miles Oldfield put up a game fight. Jay kept well out and let Oldfield hug the rail all the way around. Up and down the stretch Jay would gain handily, but on the turns Oldfield would close up a little with his reckless taking of the corners. But the speed was with Jay, and Oldfield was at the three-quarter pole when Jay finished.

The five-mile open for cars of 1,432 pounds brought out three starters—George Soules, with a Pope-Toledo; Dan Wurgis, with the Reo, and Fred Tone, with the Marion. Wurgis took the lead at the start, but at the completion of the first mile was being overhauled by Soules when the Pope-Toledo began having engine trouble, and Wurgis had it all his own way to the finish.

There was a great finish in the five-mile open for stock touring cars with tonneau, guards and hood, listed at $1,500 and under. Breed, in the Buick, took the lead at the start and held it well for several laps, increasing steadily. The Queen car dropped out with poor ignition, and at the end of the second mile Scheuffler, in a Jackson, began to creep up and overcome Breed's long lead. He gained steadily to the end of the fifth mile, when the cars came down the stretch together. The Jackson had the finest burst of speed, and crossed the tape half a length to the good. It was one of the cleanest races ever seen on the local track.

In the first heat of the five-mile $500 trophy race Oldfield won from Burman, who also drove a Peerless, by half a length, and in the second heat Webb Jay won from Wurgis easily by a quarter mile, doing the last two miles with the steam throttled. Burman, in the Peerless, won from the Soules boys in the third heat. There was a little bad feeling in this event, as the Soules brothers had protested the Peerless earlier in the day, the protest not being allowed by the judges.

On the second day the Oldfield-Wurgis accident occurred in the first mile of the five-mile open, at the three-quarter turn. The race brought out four starters—Barney and his racing partner, Burman, in Peerless cars; Webb Jay, in the White, and Wurgis, in the Reo. Jay had pulled out a good lead in the backstretch, and Oldfield was opening up on the other two, hugging the rail at the turn, when his engine failed, and the *Green Dragon* slowed down quickly.

Wurgis and Burman, coming at less than a mile-a-minute clip and intent on the turn, did not notice this until they suddenly came upon Barney. Wurgis, who was on the inside, was pocketed, with Burman on his right. He swerved out to pass between Oldfield and Burman, but the opening was not big enough, and his rear wheel caught the rear wheel of the *Dragon* and twisted the car around into the fence. A tremendous cloud of dust arose, and Oldfield was shot up into the air and thrown twenty feet over the infield fence. His car crashed through the fence and down into the ditch, a dilapidated wreck of its former self. Wurgis swerved across the track and crashed through the outside fence and into a sulky that stood near the stables. He was not hurt and drove his car into the paddock. The management had fortunately provided an ambulance, and Oldfield was hurried to Harper Hospital, where he soon recovered.

Earlier in the day Oldfield and Jay had had a hot fight in the Diamond cup race, Jay winning in the fast time of 4:52 4-5, the fastest mile being in 57 4-5 seconds.

Summaries for both days follow:

JAY AND OLDFIELD STARTING IN DIAMOND CHALLENGE CUP RACE AT DETROIT.

First Day.

Five-mile open, cars under 1,432 pounds.—Dan Wurgis, Reo, first; George Soules, Pope-Toledo, second; Fred Tone, Marion, third. Time, 5:40 1-5.

Five-mile open, stock touring cars listed at $1,500 and less.—E. F. Scheuffler, Jackson, first; G. Breed, Buick, second; Holloway, Elmore, third. Time, 7:31.

Five-mile motorcycle handicap.—Hamilton Carhartt Jr. (scratch), first; Oscar Kratz (30 seconds), second; T. B. Chadwin (45 seconds), third. Time, 7:33 2-5.

Five-mile race for $500 trophy, first heat.—Barney Oldfield, Peerless *Green Dragon,* first; Charles Burman, Peerless, second. Time, 5:20 3-5. Second heat—Webb Jay, *White Ghost,* first; Dan Wurgis, *Reo Bird,* second. Time, 5:15 4-5.

Five-mile open, stock touring cars, stripped.—Charles Burman, Peerless, first; Charles Soules, Pope-Toledo, second; George Soules, Pope-Toledo, third. Time, 5:15 2-5.

Ten-mile open.—Webb Jay, *White Ghost,* first; Barney Oldfield, *Green Dragon,* second. Time, 9:36 3-5.

Second Day.

Five-mile open, cars under 1,432 pounds.—Dan Wurgis, Reo, first; George Soules, Pope-Toledo, second; Fred Tone, Marion, third. Time 5:28 4-5.

Five miles for Diamond Challenge Cup.—Webb Jay, White, first; Barney Oldfield, Peerless, second. Time, 4:52 4-5.

Five-mile open, stock touring cars listed at $1,500 and less, complete with tonneau, guards and hood.—G. Breed, Buick, first; Reliance, second; Holloway, Elmore, third. Time 8:11 2-5.

Five-mile open for purse of $150.—Webb Jay, White, first; Charles Burman, Peerless, second. Oldfield and Wurgis did not finish. Time, 5:21.

Five-mile open, stock touring cars, stripped.—George Soules, Pope-Toledo, first; Fred Tone, Marion, second; E. F. Scheuffler, Jackson, third.

Five-mile trials against time.—Charles Burman, Peerless; time 5:12 2-5. Webb Jay, White, did not finish.

Ten-mile motorcycle handicap.—Kenneth Crittenden (1:30), first; Walter Blackwell (1:30), second; Oscar Kratz (30 seconds), third; Hamilton Carhartt, Jr. (scratch), fourth. Time, 18:16.

Would Study Conditions Threatening French Industry.

A proposal to hold a "congress of experts" in Paris for the purpose of studying the conditions that confront the French automobile industry and of finding means for improving them is made in an article entitled "The Automobile in Danger," published in a recent issue of *Le Matin*, a French political and slightly sensational daily newspaper that is highly in favor of the automobile. The article sounds a note of warning to the French manufacturers by pointing out the rapid advancement in automobile manufacture in the United States, England and Germany, and attempts to give some timely advice. As *Le Matin* has recently arranged to secure the telegraphic service of the *Sun* for its American news, what it has to say with regard to the industry in America is of especial interest.

Freely translated, the article to which reference is made reads as follows:

"The long and disastrous strike of the carriage body workers, which ended only a little while ago, was productive of a few lessons which we think it will be useful to point out.

"While for weeks our best metal workers and all the men in our automobile factories were threatening to quit work out of sympathy with their fellow workers, and while on the other hand the makers threatened to transfer their factories out in foreign countries to avoid further labor troubles, it occurred to us that a congress should be organized to determine the extent of the danger that really threatens our national industry and also the means of combating it.

"Because our exports last year reached the amount of 74,000,000 francs, we seem to believe that we have conquered the whole earth; that we now are unbeatable in any kind of market; that our superiority would seem to have been recognized everywhere, and we would not have anything more to fear from foreign competition.

"Such is not altogether the case.

"At the last New York show, that where the American-made cars were exhibited, it was shown that that country was endeavoring by every possible means to take the very first place in the industry; the American cars, certainly, did not have the finish, the refinements, the beauty and the proportions of our own, but their prices were very much below ours. Our makers were simply stupefied, for where we have mostly cars which are listed at 15,000 francs ($3,000), machines were to be found that were offered for 5,000 francs ($1,000) at New York.

"Is it any wonder, then, that the automobile factories should grow in that country in a most vertiginous way, and that they should have made, in 1904, 10,000 more machines than ourselves? At the Chicago show two French machines were shown; all the others, out of three hundred and fifty, were American made.

"If from America we pass to Germany and England, we certainly must admit that the last London and Berlin shows were marvelous.

"England, to whom we sold in 1904 50,000,000 worth ($10,000,000) of automobiles, is being agitated by the press, and wants to manufacture her own cars and cease buying from us. The English have the advantage over us of making some very cheap types of machines, cars being found in all catalogues that list near 2,500 francs ($500).

"Our makers make the mistake of catering too much for the richest trade and thus restrict their own market. Not only do we seem to despise the cheaper machines, but further, we do not seem to want to hear anything of the commercial vehicle. In London, several omnibus lines are running with the greatest success, and in every industrial town in Great Britain a number of industrial motor vehicles are to be found, while we have only a few solitary samples running in Paris.

"We have not only to fight against the foreign makers and their clever ways, but we also have to fight against the foreign governments and the careful watch which they keep on their subjects' interests. In that respect we are badly protected; we do not defend ourselves well. Young as it may be, the French automobile industry already suffers from routine—its own, and that of the government. The law obliges us to follow the rules of the road contained in regulations issued as far back as 1851 and 1852, while the present conditions cannot be compared with those of that time.

"The taxes are also a heavy burden; a mere 14-horsepower car, which is a very reasonable power, pays 320 francs ($64) in Paris, while considering that cars are frequently sold and bought second-hand, and that the new owner has to pay the tax again for every month of the year that is not passed, it happens that in a twelvemonth as much as four or five times the legal yearly tax has been paid on the same car.

"Passing to other conditions, gasoline costs 12 cents a litre in Paris, while it is sold at 2 3-5 cents in Brussels and hardly anything in America. [?]

"It will be necessary for a congress to determine the best ways of altering these conditions and bringing about others which may be found necessary to the industry. It will also be necessary to find openings for our output.

"In United States the manufacturing facilities appear to be not over 20,000 cars a year, while the demand is for well over 30,000; the margin is still a handsome one.

"In Canada, the French Chamber of Commerce stated that if the French makers would unite in an effort to open, at common expense, a general depot, it would find a large number of buyers.

"Two points, however, are to be observed:

"1st—The foreign agencies must be selected and organized with all possible care and guarantees.

"2d—The vehicles must be so adapted that they will stand up well under the special requirements of each country."

After going into other details of less interest, the French paper comes to the conclusion that a congress of experts to study the conditions in favor of and against the French industry is necessary, and offers its services and the use of its buildings for the purpose and offers to open a credit or subscription toward the expenses.

Hardly any comment is necessary upon these remarks, although it should be remembered that the successful commercial vehicle competition just held in Paris will alter considerably some of the views expressed.

Plans for Paris Salon.

Special Correspondence.

PARIS, Aug. 5.—Preliminary work has already been begun on the eighth annual Paris Automobile Show for next December, an advance prospectus having been sent out this week. As in 1904, the show will be held in the Grand Palais on the banks of the Seine, with an annex in the "Serres" (or municipal conservatories) for motor boats and industrial vehicles. Notwithstanding every available inch of space was occupied last year, and the question of a larger building was discussed, no change of locality has been made. The only other available building is the vast Galerie des Machines, on the Champ de Mars. Although this would give more than the necessary amount of space for the entire exhibition, it would, on account of its distance from the center of the city, be prejudicial to the social standing of the Salon—a matter of too much importance to be neglected.

The date of the show is from December 8 to 24, no change having been made in this respect, notwithstanding the discussion which took place immediately after last year's Salon, and the change of date of the London shows with the object of stealing a march on Paris. The promoters of the Paris Salon are somewhat handicapped, for the Grand Palais is under the control of the Fine Arts Society, which, owing to its own exhibition, can lend it to the Automobile Club only for the month of December.

The roster of the organizing and executive committees does not reveal many changes. Baron de Zuylen, president of the Automobile Club of France, remains honorary president of the Salon. The vice-presidents are the Marquis de Dion, M. Darracq and M. Poirier. Fourteen members of the organizing committee are nominated by the Automobile Club of France, thirteen by the Chambre Syndicate de l'Automobile, eleven by the Cycle and Automobile Syndicate, and eight by the Syndi-

cate of Cycle Manufacturers. Monsieur Rives, who has had such an honorable connection with the Paris shows, remains president of the Executive Committee and Commissaire Général.

In order to recompense the longer established firms that have contributed by their initiative to the advancement of the automobile industry, a certain number of stands in the central nave will be reserved. These stands, which will be let at a special price, will be chosen by the drawing of lots, and given to the French constructors gaining the largest number of points as follows: For seniority as constructors of automobiles, 5 points for each year of existence; for participation in competitions organized by the Automobile Club of France or the French Government, 3 points for first place, 2 for the second, and 1 point for the others; the same number of points are also given for participation in races organized by the French Government or the A. C. of France; participation in the annual exhibitions of the A. C. of France gives 5 points for each year, and the same number is given for the automobile sections of governmental exhibitions; 3 points per year are given for foreign exhibitions (automobile section) recognized by the French Government. Rewards gained in the French annual exhibition, in governmental shows, and in officially recognized foreign shows, will give 5 points for the members of the jury, and for winners of first class prizes, 4 points for second class prizes, 3 for third class, 2 for fourth class, and 1 for fifth class. The total number of points gained will determine those who are entitled to draw lots for the positions of honor.

Fifteen classes of exhibits are provided for, beginning with Class I for automobile vehicles, motorcycles and all forms of mechanical traction, and ending with literature, photography, maps, books, newspapers, etc.

Blackpool Speed Trials.

Special Correspondence.

LIVERPOOL, Aug. 4.—New records were established at the two-days' race meet at Blackpool last Thursday and Friday, July 27 and 28. Clifford Earp, driving a 90-horsepower Napier, succeeded in tying the world's record of 104 1-2 miles an hour, and Henri Cissac, the French motorcyclist, lowered his record figures, made at Brighton the week before, to 50 1-5 seconds for the flying mile, and 25 3-5 seconds for the flying kilometer. Cissac rode his 14-horsepower Peugeot.

The first events on Thursday were scratch races for cars in racing trim costing less than £1,250 and £1,500, respectively. The twenty or more cars competing included all the best-known types—Mercedes, Leon Bolleé Itala, Darracq, and the like—but in each case the winner turned out to be Mr. A. Birtwistle's 35-horsepower Daimler. No less than five of these cars were entered. The winner's speed over the mile and a half course from a standing start was a little more than seventy miles an hour. A Daimler also took second place in each event.

The well-known French record-breaking motorcyclist, M. Cissac, next made an attempt on the world's records for both the mile and kilometer. The machine was a 14-horsepower two-cylinder Peugeot—purely a speed monster, which would not survive many miles of ordinary road.

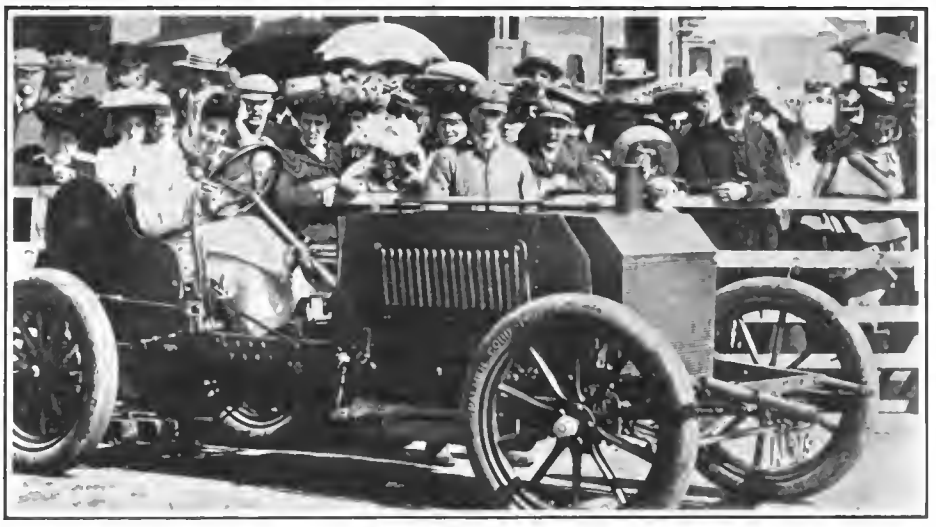
After several misstarts Cissic got away, but could not do better than 27 3-5 for the kilometer and 54 4-5 for the standing mile. On covering the course in the reverse direction, however, the kilometer was passed in 25 3-5 seconds (87 1-2 miles an hour) and the standing mile in 50 1-5 seconds (71 1-2 miles an hour), both of which are world's records.

A scratch race for racing cars less than 1,000 kilograms limit was next run over the flying mile. The cars run singly and the average of these runs was taken. As was expected, Earp, on the well-known six-cylinder Napier, was first, with an average of 38 1-5 seconds for the mile. Lee Guiness, on the 100-horsepower Darracq, averaged 88 1-2 miles an hour, while Cagno, on one of the 100-horsepower Fiats that competed in the Gordon Bennett race, only managed to make 76 1-2 miles per hour, carburcter trouble being given as the reason. Miss Dorothy Levitt had a lot of trouble from dogs straying in the course, and her 80-horsepower Napier only averaged 69 miles an hour.

The second day's events proved more exciting. After a handicap race for Darracq cars, the 8-10 four-cylinder Humber won the Lancashire Club handicap. The races were over the flying kilometer, and in the class for stripped touring cars of less than £1,250, Percy Martin took first place with a 35-horsepower Daimler, in 30 2-5 seconds, or about 73 miles an hour. A 70-horsepower Darracq was second, in 30 4-5 seconds. In the next event, these positions were reversed, the Darracq improving to 29 4-5 seconds, while Martin's Daimler was second.

The principal event of the day was the attempt at the flying kilometer record by the racing cars. As a special incentive the Blackpool authorities had offered a £100 prize for the best speed above 95 miles an hour, and £250 if the world's record was broken. Out of ten entrants only three started—Earp, Guiness and Moore-Brabazon. In the actual event, Earp won in 22 4-5 seconds; Guiness took second place in 24 2-5 seconds; and Brabazon, on a Mors, 26 seconds. Earp was not satisfied with his speed and made three more runs, trying the course both ways. On the first attempt he scored 21 3-5 seconds. The second time the world's record of 21 2-5 was equaled. He was unable to pass this, and his third run fell to 22 seconds.

Since the races at Blackpool in October last, the corporation of this go-ahead English seaside resort built a new two-mile promenade along the shore, and it was decided that the most auspicious way to open this new track was by means of an automobile race meeting. As all classes of touring cars were catered for at Brighton last week, the Automobile Club decided to limit the present events to racing and stripped touring cars.



MISS DOROTHY LEVITT IN HER NAPIER CAR—COMPETITOR IN BLACKPOOL RACES.

The spectators were very much bored by the lax manner in which the events were run off, and so much ill feeling was aroused that it is not likely that another race meeting will be held at Blackpool for some time to come.

ENGLAND QUITS GORDON BENNETT

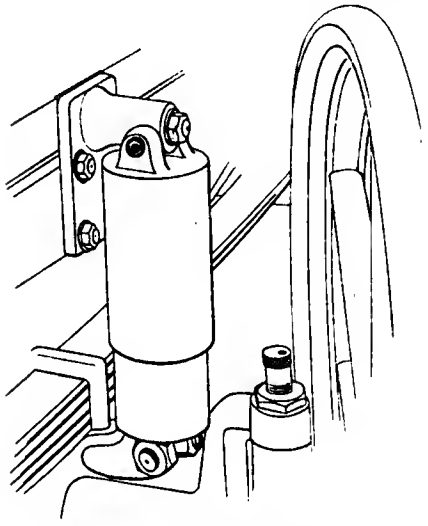
Special Correspondence.

LIVERPOOL, Aug. 4.—The Automobile Club of Great Britain and Ireland has decided not to challenge for the Gordon Bennett cup race in 1906. No statement has yet been made public giving reasons for this decision on the part of the club, but an early explanation is expected.

George Freeman has the fever and may buy an automobile.—*Anderson (Ind.) Bulletin.*

New Shock Absorber.

When the spring maker undertakes to produce a set of good springs for an automobile, he sets himself a difficult task. The weight to be carried is not only heavy, but is certain to vary between wide limits; yet he must, if he can, provide springs that will make the car ride comfortably under all conditions of load. Again, the speed of the car will vary greatly, and the action of a spring when the car is running fast is quite different from its action when the car is running slowly. If the spring is heavy and stiff, the car will, of course, be most uncomfortable to ride in; whereas, if the spring is light and flexible, the car will ride beautifully at slow speeds and on ordinary roads; but at high speeds and on bad roads the play of the springs will be excessive, resulting in bumping on the axles when compressed and probable breaking of



SHOCK ABSORBER ATTACHED TO CAR.

the springs on the rebound. To make possible the use of flexible springs a number of devices have been brought out, all having for their object the retardation of the extremes of spring motion by some sort of cushioning or shock-absorbing device. The number of such shock absorbers, as they are generally called, that are in use is evidence of the necessity for their use. One of the most recent shock absorbers is the Kilgore air cushion, manufactured by the Kilgore Automobile Air Cushion Co., P. O. Box 820, Buffalo, N. Y. This appliance consists essentially of a cylinder in which works an air-tight piston; the cylinder is attached to the axle and the piston to the car frame, suitable brackets being provided for the purpose. Universal joints are applied at the points of attachment, so that movements in all directions are provided for. A cap or casing is made integral with the piston or plunger; the cap fits closely outside of the cylinder, excluding dust, while the piston fits within the cylinder. The cylinder is said to contain sufficient lubricant for 10,000 miles ordinary running. As long as the car fitted with these cushions is running over ordinarily uneven roads, the springs will move freely, the elasticity of the air in the cylinders being sufficient to permit this. If a rougher road is encountered, or if the speed of the car is so increased as to magnify the effect of the rough places, the air cushions will take the shock when it becomes too severe for the springs, and bring the car body to rest gradually and without damage to the springs, whether under compression or on the rebound. The comfort of the passenger is not the only important consideration; for the more easily the car rides, the less severe will be the wear and tear imposed on the machinery.

MAKES PARTS ORDERING EASY.

One of the cleverest and most sensible ideas with regard to trade literature that has come to attention in a long time is embodied in a plain and unassuming little booklet of ninety-six pages recently issued by the Maxwell-Briscoe Motor Company, of Tarrytown, N. Y. Its purpose is to make the ordering of duplicate parts for replacement in Maxwell cars a very simple matter, whether by letter or telegram. Owing to the variations in nomenclature of the various parts of automobiles, this is usually attended with considerable uncertainty, delays and very frequently by misunderstanding. Use of the booklet mentioned, by the owner of one of these cars—or by the repairman ordering extra parts—should wholly obviate such annoyances.

The sample page of the book reproduced herewith shows the arrangement of all. Every separate part or piece of the cars manufactured by the company, no matter how small and insignificant or how large and costly, is represented by a drawing in the first column, and in succeeding parallel columns are given its serial number, the name of the part, the shop number, the material of which the part is made, the number of such parts required for a car,

MODEL-H
ENGINE & TRANSMISSION PARTS

SKETCH	SERIAL NO.	NAME OF PART	PART NO.	MATERIAL	PARTS REQD	PRICE EACH
	156	CONNECTING ROD	H-17	MALL IRON	2	
	157	CONNECTING ROD CAP	H-18	MALL IRON	2	
	158	CONNECTING ROD CAP SCREW	H-19	⅝ - 18 CAP SCREW	2	
	" 159	CONNECTING ROD CAP PIN	" H-20	C.R. STEEL	2	One Set Complete $6.00
	" 160	CONNECTING ROD SCREW, PISTON END	" H-21	⅝ - 18 CAP SCREW	2	
	161	CONNECTING ROD BUSHINGS	H-19T	BRONZE	2	
	" 162	CONNECTING ROD BUSHING SCREWS	" H-19B	BRASS	4	
	163	PISTON	H-13	CAST IRON	2	6.00
	164	PISTON PINS	H-15	STEEL	2	.15
	" 165	PISTON PINS SET SCREWS	H-16	⅜ - 18 SET SCREW	4	.05
	166	PISTON RINGS	H-14	CAST IRON	6	1.00
	" 167	PISTON RING PINS	" H-19	1/4" STEEL	6	.05
	168	PISTON OIL TUBE	H-18	¼ TUBE BRASS	2	.10
	" 169	PISTON PIN SET SCREW NUT	" H636	¼ HEX NUT	4	.05

PAGE FROM DUPLICATE PARTS CATALOGUE.

Arrival of Monsieur and Madame Dupont, of Paris, in their automobile to make a visit to their last born, put out to nurse in Bouzy-le-Tetu.—From *Sans-Gene.*

and the price of the part. The parts are properly classified and related so that one does not need to hunt all through the booklet to find the part he wants.

A scant two pages of the book are devoted to brief and necessary comment and two more to drawings of the chassis of the runabout and touring car made by the Maxwell-Briscoe Company, the remaining ninety-two being devoted exclusively to descriptions of parts, like the page reproduced.

Though a beautifully simple scheme, and one that does not look very costly, each page is done entirely by hand, from the minute drawings of the different parts to the lettering, making the expense much greater than that of a more handsomely illustrated and printed catalogue. Nevertheless, the work will be appreciated by users of these cars, and it shows how a manufacturer can help his customers and agents if he will.

NEW LITERATURE.

Ohio Highway Bulletin.—Bulletin No. 2 of the recently created Highway Department of the State of Ohio, issued last June, is a pamphlet of twenty pages on the "Construction of Country Roads," by Sam Huston, state highway commissioner. The monograph deals with the location, drainage, foundation and surfaces of country roads. In treating of surfaces, the paper subdivides the subject into clay, gravel, and broken stone surfacing, and the writer gives many useful observations with regard to the construction of each, its durability, the proper materials to use and experiences with such roads in different parts of the country. Though brief, the treatise should be of interest and value to persons everywhere who are contemplating the improvement of country roads.

Letter Box

Steam Car with Double Power Plant.

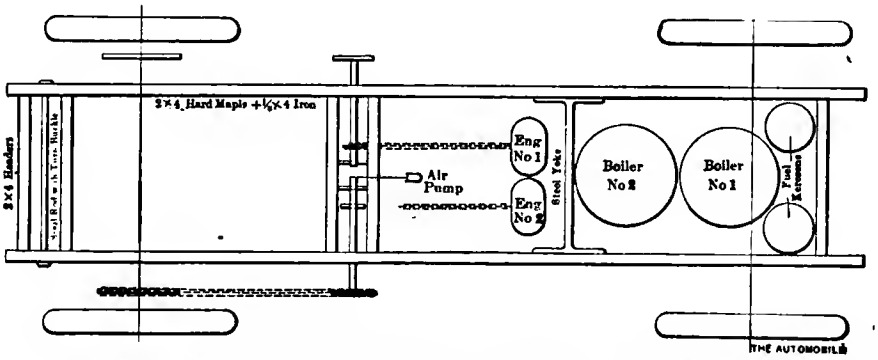
Editor THE AUTOMOBILE:

[244].—No one, so far as I know, has ever built an automobile on any other principle than that of "putting all the eggs in one basket," so I determined to build a steam car myself with a double power plant, so arranged that if half the plant got out of order I could run with the other half. I carried out my intention, and the photograph which I send shows the appearance of the finished car.

The machine has never been towed home, nor anywhere else, for that matter; but on a few occasions, when the car was new and everything not yet working perfectly, I have run as much as ten miles on one engine, stopping only long enough to get out and close a valve; the other occupants of the car knew nothing of the omission of half the propelling power. I have, however, towed others who have got into trouble, and one man was good enough to tell me, after I had pulled him nine miles, that he really had gotten home quicker than he would have done if he had not broken down.

The power plant consists of two Tonkin boilers fired by "Lightning" kerosene burners, and two engines. One engine drives to each rear wheel, no differential gearing being used. The main steam pipes are connected by a 3-8-inch cross pipe, which has the effect of equalizing the steam pressure in the two boilers. The two throttles are connected to one lever, and the links to one reverse lever, so that the control is the same as with a car having a single power plant.

One of the objects I had in view in building this car was to get a machine in which all the machinery should be accessible from above, and all thoroughly protected from dirt. Absolutely the only parts of the driving mechanism of this car that are exposed to dust and dirt are the two side chains and their sprockets. Boilers, burners, engines, pumps (both water and air), and everything else connected with the power plant, are protected by a long galvanized sheet-iron pan, nearly eight feet long, which not only protects the machinery, but, being very stiffly braced, stiffens the whole vehicle and also makes a fine support to which pipes can be attached. It is a decided addition to the appearance of the car. Nearly everything used in its construction was purchased from parts manufacturers. The car is a practical machine, and of very high grade throughout.



PLAN DRAWING OF SEELY CAR, SHOWING LOCATION OF BOILERS AND ENGINES AND DOUBLE DRIVE ARRANGEMENT.

The frame is of hard, white Michigan maple, 2 inches thick and 4 inches deep, flitched on the outside with iron plates the same depth as the frames and 1-8 inch thick, fastened every 8 inches with 5-16 inch bolts. The side frames are tied together with 3-4 inch steel bolts with turnbuckles, each bolt pulling against two maple cross frames, the ends of which are let into the main frames 1-8 inch to avoid twisting. In addition to the bolts and cross frames there is a cross piece of iron 1-2 inch thick and 1 1-2 inches wide, with plates at the ends which are bolted to the insides of the side frames. This iron cross member supports the engines, top and bottom, as well as the rear of the rear boiler, and to it is also fastened the rear end of the galvanized iron pan. It also adds greatly to the stiffness of the frame. The vehicle has a wheelbase of 108 inches; the wheels are 34 inches in diameter, and are fitted with 4 1-2 inch Continental tires all around.

As the plan sketch shows, each engine drives to a separate countershaft by chain, and two more chains drive from sprockets on the countershafts to sprockets on the rear wheels. The chains from the engines to the countershafts are 1-inch Whitneys, while the main driving chains are heavier, being 1 1-4 inch, of the same make. The difference in sizes is due to the fact that the engine chains are entirely protected from dust, and are easily kept well lubricated, while the others are outside where they are exposed to the dust, and consequently require a greater wearing surface.

The boilers are 16 inches in diameter, and have 400 tubes 18 inches long—5 inches longer than is usual in boilers of this diameter. This extra 5 inches gives a great deal more room for steam, allows a higher water level, and, of course, permits more heat to be absorbed from the fire than would be the case with shorter tubes. The products of combustion are discharged downward under the car. There are caps or lids in the tops of the smoke boxes, and these caps can be reached through doors in the top of the hood. When starting the fire the caps are removed to allow the smoke to escape until there is sufficient steam pressure to start the blowers, which are simply small needle valves supplied with steam from 1-8 inch pipes, outside diameter. The exhaust is not used or needed for this purpose when running.

I do not use a condenser. The cardinal points of my car are simplicity, reliability and comfort, and I care more about getting forty or fifty miles out of my car in comfort than two or three times that distance wrapped up in dust coats or smothered with dust. The meaning of this last statement must be explained. I use my exhaust steam

F. L. SEELY'S HOME-MADE STEAM CAR WITH DOUBLE POWER PLANT.

for keeping the dust out of the car, and this it does to perfection. Polished brass pipes lead from the engines to points just in the rear of the driving wheels, where the exhaust is discharged. So effective is this method of dust prevention that after a run of 100 miles over dry roads the dark green broadcloth lining of the Victoria top does not need the touch of a brush; neither does the cloth with which the seats are upholstered, and there is barely enough dust on the back of the body to show a mark when the finger is passed over it. Ladies riding in the tonneau find that no protection from dust is required. I value this feature much more than the fuel and water economy gained by the use of the condenser.

The kerosene tank holds 20 gallons. An air pressure of 80 to 100 pounds on the fuel is maintained without the slightest difficulty by the use of a little pump run from the end of one of the countershafts. A little heel button projecting from the floor serves to start this pump running. Each boiler has its individual water feed pump, and the water supply is regulated by a by-pass valve operated by a lever between the divided front seats, where the throttle and reverse levers are also located. There are no levers in exposed places, as there are in most cars.

A mechanical lubricating oil pump located on the dash is ratchet-driven by a rod actuated by one of the engine pump levers, and separate sight feeds are placed in plain sight of the driver. A double steam gauge —that is, one with two hands on the same dial—and a small air gauge complete the dashboard equipment. Two gauge glasses 8 inches long are located one on each side of the engines, at the driver's feet. A single rod reached from the seat controls the fire in both burners simultaneously, and little handles from the blower needle valves are placed in front of the driver so that drafts can be regulated to a nicety.

It is perhaps needless to say that with this power plant the car is a wonderful hill-climber and very fast. It is most luxurious to ride in, and is easily handled. I find that it is economical to run, and stands up well on the road, its substantial construction making it a machine that will not soon shake to pieces. F. L. SEELY.

Princeton, N. J.

We Stand Corrected.

Editor THE AUTOMOBILE:

[245.]—On page 137 of your issue of August 3, 1905, you refer to a certain word as of Flemish derivation. For the vindication of the Dutch language, I will state that *Snelpaardelooszonderspoorwegpetrooiryting* is genuine imported Dutch, and, far from being unpronounceable, is very pronounceable—for a Dutchman. Several mistakes have been made in copying the word. Here is the right spelling, and the right explanation thereof:

Snelpaardeloozonderspoorwegpetroolryting: "Snel" means rapid; "paardeloos" means horseless; "zonderspoorweg" means without rails (not without sails; the word is describing an automobile, not an airship); "petrool" means petroleum; "ryting" means carriage.

Should you in the future require the services of an expert on Dutch, I offer my services free of charge. J. H. M.

Tampa, Florida.

Albany-Schenectady Road Directions.

Editor THE AUTOMOBILE:

[246.]—The most-used route between Albany and Schenectady, seventeen miles west on the direct road to Buffalo, is at the present time impassable or covered, if at all, with great difficulty by autoists. A friend of the writer who made this trip less than a week ago writes that he was unable to pass, and was obliged to turn back for the other route on account of new construction now under way. This badly needed improvement has been contemplated for some time, one thing after another having arisen to delay it; but the past will be forgotten if the work now begun is carried through to completion promptly and in a thorough manner.

Consequently tourists who have been advised to leave Albany for the West by going to the right from State street around the State Capitol into Washington street, and directly out Central avenue, thence along with the interurban trolleys to State street, Schenectady, must change their course. This is not a difficult thing to do if known in advance, though it means a slight detour to the north, making a junction about midway with the direct road from Troy to Schenectady. For those unacquainted with the district the following details are given:

Turn right from State street around the State Capitol as heretofore into Washington street, but after driving about five blocks on Washington street notice Knox street, which branches off squarely to the right. This narrow street does not amount to much in itself, but it is the beginning of the Northern Boulevard. Shortly after entering Knox street, cross over the viaduct which spans a low part of the city, and shortly afterward another viaduct across the four tracks of the New York Central railroad. A short distance beyond this second viaduct bear left and on through Loudonville and Newtonville. A few miles farther on this road intersects the Troy Turnpike, which is a direct line between Schenectady and Troy. It enters Union street, which keep to Jay street, nearly downtown in Schenectady, where turn left, riding two or three minutes to State street. The latter is the principal thoroughfare in Schenectady, and the former route will bring directly to it, passing the railroad station and over the canal bridge.

However, one bound west over the route passable at this time, without making a stop at Schenectady, will not be under the necessity of running to State street at all, but may *keep Union street directly through the city* until it comes to an end at Washington avenue. Then turn right on Washington avenue and cross the bridge over the Mohawk River from the western edge of Schencctady to the small town of Scotia, from whence the usual Albany-Utica-Syracuse route is resumed.

Touring in the opposite direction, from west to east, unless making a stop in Schenectady, turn left from Washington avenue, only two or three blocks from the bridge over the Mohawk River from Scotia, into Union avenue, which keep straight out until it intersects with the line from Newtonville and Loudonville to Albany. Keep on the Loudonville road to intersection with the Northern Boulevard near the outskirts of Albany, bearing right on the boulevard, crossing first the viaduct over the New York Central four tracks, then the viaduct over a low part of the city and through a section of Knox street to Washington street, Albany. Bear left on Washington street, which keep ahead to the State Capitol, then bearing right around Capitol into State street, which follow to Broadway.

These directions will save the tourist the probability of being obliged to retrace his steps if following the usual directions over this course, and it might therefore be the means of saving quite a little time and some trouble. More than that, a locally unacquainted motorist, finding the usual route impassable, would probably have considerable difficulty in ascertaining the optional route by making local inquiries.

ROBERT BRUCE.

Changing Coil Connections.

Editor THE AUTOMOBILE:

[247.]—I am using a storage battery and an auxiliary battery of dry cells to supply current for the ignition system on the four-cylinder motor of my car, and I would like to be enlightened on the following points: Should any special reference be made to the positive or negative poles of the battery when connecting up the switch and ground wires of either battery? I am inclined to believe that there is a specific relation between the poles of the batteries and the ground and switch wires; also that improper connections would cause the early destruction of the platinum points of the vibrators. Possibly other evil effects might be produced. A. F. A.

Chicago.

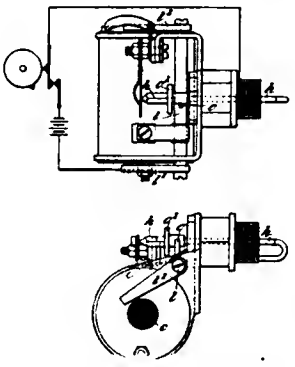
The direction in which the battery current flows makes no difference, so far as the operation of the coils is concerned; the vibrator contact points will suffer no more with the current flowing in one direction than in the other. It is advisable, however, to occasionally reverse the terminals so that the current will pass through the coils in the opposite direction. This is because the positive point is reduced by the action of the current considerably faster that the negative point, and the reversal of the poles will equalize the "wear" and keep the points in better condition than if this is not done.

Patents

Primary Igniter.

No. 796,349.—A. J. Postans, of South Kensington, England.

This igniter is of the class in which an electro-magnet built into the igniter actu-



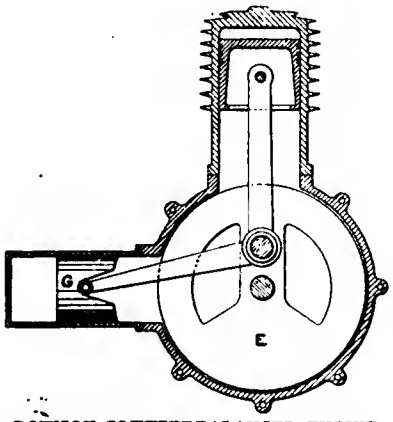
POSTANS PRIMARY IGNITER.

ates an armature to give a vibrating contact between the ignition points, somewhat after the manner of a buzzer. The electro-magnet is a single straight coil, and its two poles attract the soft iron fingers l^1, attached to the iron shaft l, which acts as a pivot for the fingers. Projecting from l is the pin o, which taps against the collar o^1 on the stem h. The action of this pin is to rotate h slightly besides retracting it to break the circuit.

Balancing Arrangement for Single-Cylinder Motors.

No. 795,901.—P. E. Dowson, of Hyde, England.

The principle of this invention depends on the fact that if in the ordinary single



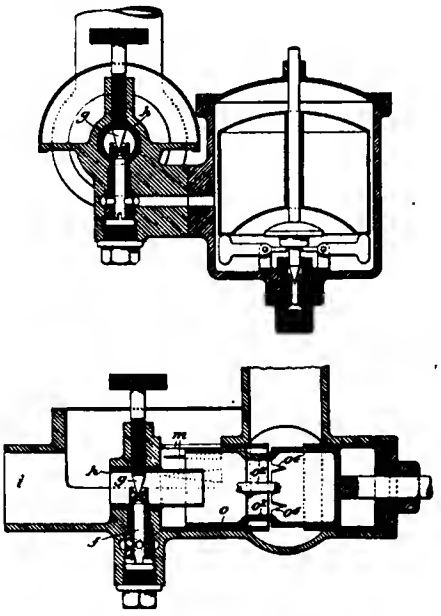
DOWSON COUNTERBALANCED ENGINE.

cylinder engine the counterweight E is made heavy enough to balance completely the axial vibration due to the piston and connecting rod, it introduces a transverse vibration of amount equal to the axial vibration, which it balances. In the present invention this transverse vibration is itself balanced by a bob-weight G, whose axial vibration is opposite to that produced by the counterweight E.

Carbureter.

No. 794,951.—A. E. Schaaf and V. E. Lacy, of Toledo, O.

This carbureter is of the float feed type with the spray nozzle adjustable by the needle valve g, as shown. The essential feature of the carbureter is found in connection with the throttle with which it is combined, this throttle being arranged to increase the opening of an auxiliary air inlet as the opening of the throttle itself is increased. The air enters at i, and the main stream passes through the tube h, past the spray nozzle, beyond which it combines with another stream entering through the auxiliary inlets m. The throttle indicated by o is in two parts, connected by the bridges o^2, and it is fully opened by moving it to the right from the position shown in the drawing. It may be completely closed by movement to the extreme left, and when opened only a little mixture passes in



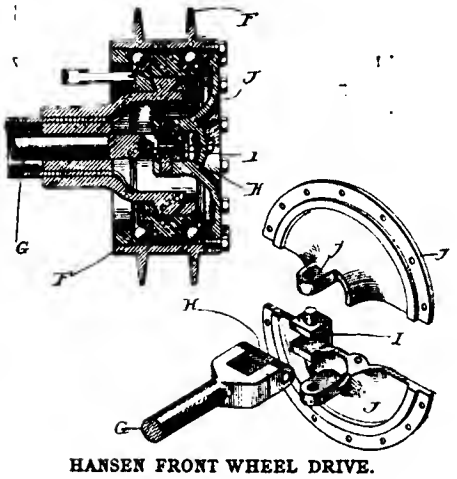
SCHAAF AND LACY CARBURETER.

through the triangular notches o^4. In this position only a very slight amount of air gets through the slits m. The intention is to maintain an equal mixture at any opening, but it is evident that this carbureter is not automatic in the sense of adjusting the auxiliary openings according to the speed of the air stream. Consequently it is necessary for the operator to take hills, for example, on a somewhat reduced throttle in order to get the necessary intensity of suction.

Front Wheel Driving Mechanism.

No. 796,121.—H. G. Hansen, of Milwaukee, Wis.

This is a universal joint connecting the driving shaft G and the wheel hub J, and its special feature is that the hub may be taken off the axle without loosening any bolts or the like in the universal joint. This is accomplished by making one member of the universal joint in the form of a yoke I, into which enters the block H pivoted in the end of the shaft. The yoke has pivot pins formed on it, and J is split for the purpose of assembling it over these



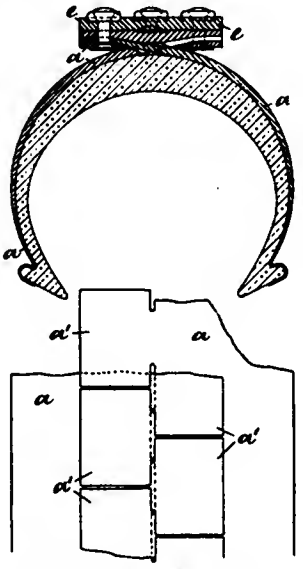
HANSEN FRONT WHEEL DRIVE.

pins and is held together by fitting into the hub ring F.

Non-Skidding Tire.

No. 795,906.—H. Garner, of Nantwich, England.

This tire is so arranged that when the leather tread and the metal rivets in it are worn they may become renewed, which is practically impossible with the common form of non-skidding tires. Another object is to protect the rubber portion of the tire shoe from chafing by the inner heads of the rivets. These objects are accomplished by the construction shown, which practically consists in making the leather covering a in two parts, which are cut and fitted together, as shown in the plan view below,



GARNER ANTI-SKID TIRE.

and in riveting the working tread e to the flaps a.

The good roads question is not one susceptible of local or class distinction. It is National, with a big N, affecting the progress of the Nation and the welfare of all the people.

THE AUTOMOBILE

VOL. XIII. No. 7

Published every Thursday by
THE CLASS JOURNAL CO.,
Flatiron Building, Madison Square,
NEW YORK CITY.

Cable Address - - - - Autoland, New York
Long Distance Telephone - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2.00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 5 o'clock p. m. Monday for the issue of Thursday following.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies Printed in 1904,	- - -	639,300
" "	This Issue, - -	13,500
" "	Since Jan. 1, -	460,500

Run the Cup Race Right-Handed.

The reason given by the Vanderbilt Race Commission for deciding at the recent meeting to run the race "left-handed," or in the same direction as that of track races, is unconvincing and naturally awakens some apprehension that other rulings of a like character may endanger the safety or success of the race.

Run in the customary direction (clockwise), the important turns, with one exception, would be right hand, whereas under the decision referred to the reverse will be the case.

Discussing the decision, the physical character of the course does not demand it, for the very moderate grades will certainly present no dangers to any driver who is competent to enter in a race against men who competed in the mountain circuit of Auvergne, picked especially for the difficulties it presented. The matter of taking the sharper grades at speed down hill can therefore be dismissed as not needing serious consideration in connection with a hard contest for international supremacy and as being quite overbalanced by more important considerations.

Chief among the latter is the fact that all of the contestants are accustomed to right-handed driving; the law of the road in America and in Europe, with the exception of the British Isles, requires that the driver shall keep to the right side of the road, and that he shall pass overtaken vehicles on their left side. It is the almost universal practice to build cars to be operated from the right-hand side, and anyone driving from that side can see better to take the turns if the race is run with the inside of the turns on that side of the car—that is, right-handed, or in the direction of the movement of the hands of the clock.

Another very important point, which apparently has not been given the attention it demands, is that in the straight stretches the contestants will expect overtaking cars to pass on their left, but if the race is run left-handed they will cut directly across to the inside of the road every time they turn a corner in order to avoid danger from skidding, thereby temporarily blocking the whole road until they swing back to the right side of the road after making the turn. How greatly the liability of collision will be increased can be seen when it is remembered that there are to be twenty cars on the twenty-nine-mile course at once, all started at two-minute intervals.

There is little doubt that objections to the decision will be raised by the European teams on their arrival here, and should the Commission, yielding to their protests, decide to run the race right-handed, the previous experience of the American team with the course in the elimination trials will go for naught. Considering the experience the foreign teams have gained in the Gordon-Bennett race, the American entrants cannot afford to lose any such opportunity for practice as the elimination trial would afford. And, on the other hand, if the decision made is adhered to in the race itself, it will give cause for just criticism on the part of the European contestants that this handicap was imposed for no good reason in sportsmanship.

In matters of such importance as the rules for the Vanderbilt Cup Race, it seems as if it would be well to consult with racing board members or outsiders who have had actual experience in road racing.

If it is, as the Commission seems to think, too late to increase the length of the course, to which the foreigners have already raised objection, it is not too late to remedy the mistake of requiring the contest to be run in the direction that is obviously the wrong way of the circuit.

✷

A Word About Lamps.

The suggestion comes from one who has done thousands of miles of touring over all sorts of American roads, east and west, that all fixed headlights and searchlights, particularly the heavy ones having combined generators, should have forged steel sockets for attachment to the brackets or yoke. The tremendous vibration set up in a lamp carried on a springy yoke by the engine, particularly of a two-cylinder car, and by roughnesses in the road surface, is a severe test of the lamp sockets and the metal sides of the lamp to which they are attached. Under this vibration the steel set-screw soon hammers out of shape the thread in the soft brass or malleable iron socket commonly used until the screws become loose; then vibration of the lamp on the bracket is set up and the socket piece breaks.

Even to the casual observer who notes the vibration of lamps on a car it is obvious that strong material should be used for securing the lamp to the car, both in the bracket or yoke and in the socket pieces. Forged steel combines the required strength with the desirable lightness, and it should be used for the purpose. Instead of soldering or riveting small socket pieces onto the thin brass sides of the lamp, the lamp maker would insure greater durability by forming the sockets integral with a steel band completely encircling the body of the lamp, either inside of the brass shell or outside, and riveted as well as soldered to it.

✷

Automobiles Out of Control.

Recent fatal accidents on country roads, which have had widespread publicity in the public press, are deplorable, but in some of these the victims will not have died in vain if their fate serves as a deterrent to those who when driving abandon caution—even common sense. We do not refer so much to fast driving on urban or suburban roads, which is usually illegal and always intolerable, but fast driving on country roads, even in the most sparsely settled districts. Leaving any question of legality out of consideration, there is the more immediate one of physical safety. Criminal carelessness is a mild term to characterize the actions of a man who will invite other and probably innocent persons to ride in a powerful car, and then "open it up" on an unknown road.

No railroad in the world would permit an engineer who was unfamiliar with a track to drive a fast train carrying passengers over the road, except possibly in some case of dire emergency which we are not now considering. It would certainly not do so knowingly in the ordinary course of affairs, and yet hundreds of sane and sober persons who drive automobiles do this very thing every day.

An unfamiliar road may have grade crossings—a barbarous makeshift which, for financial reasons, still exists here and in other countries; but never abroad as unprotected as here. At country crossings there is often neither gate nor gateman, even though the character of the approaches may hide the crossing from any distant view. The more unfrequented the district in which such crossings occur, the more chance that the engineer may be negligent about blowing his whistle; and under certain conditions of wind and weather the approach of a rapidly moving train may be undistinguishable to the ear, especially of one seated in a fast-moving automobile.

Holes in the road, obstructions around corners, either permanent or temporary, such as slow-moving wagons, stones or bulky articles inadvertently dropped from passing vehicles—these all may cause a sudden exit from the cares of this world and a mangled corpse for the relatives to mourn over when a car is *out of control.* That is the point. No vehicle known to man is safer to ride in than an automobile on the highway when it is traveling at any rate of speed so that it is *under control.* It can be stopped with extraordinary swiftness; it can be instantly swerved in its direction, to sidestep, as it were, any sudden obstruction, and its direction can be speedily and continuously reversed, an operation that can be performed with no kind of vehicle drawn by an animal.

It should be the unvarying rule of every automobilist, law or no law, never to drive at an uncontrollable speed on a strange road. Any other method is taking chances, and some day you will lose.

EIGHTEEN MONTHS IN PRISON.

And $100 Fine Is Penalty for Reckless Driving—Court Warns Others.

Special Correspondence.

PHILADELPHIA, Aug. 14.—In sentencing Chauffeur William H. Meyers to eighteen months' imprisonment and $100 fine for killing little Eldon Sarver in June last, Judge Audenried, in Common Pleas Court No. 1, on Friday last, delivered the prisoner, and reckless drivers generally, a severe lecture. Despite the recommendation of mercy by the jury, the punishment inflicted was a severe blow to Meyers and his friends, who were looking for an acquittal, or, at worst, a much shorter term of imprisonment. The lecture of the court carries all the more weight when it is considered that the judge himself is an ardent automobilist. Among other things, he said:

"The greatest possible punishment that could be meted out to the prisoner is the consciousness which must remain with him always that he has taken the life of a human being.

"The fixing of punishment in this case is not to be based upon the intrinsic offense, but as setting a warning or an admonition to those engaged in the same occupation.

"My observation is that there are no people in this community who are so utterly disregardful of the rights and safety of their fellow beings as those engaged in the management and making of automobiles. Careless and selfish people are to be found in all classes. There are many of them among drivers of horses. But the proportion of criminally reckless persons among chauffeurs is much greater, in my opinion, than that among horse drivers.

"The chauffeurs are well paid. They wax fat and grow impudent until they become a menace to the community.

"It is for this reason that, while giving full consideration to the jury's recommendation for mercy, I sentence Meyers to an imprisonment of eighteen months in the county jail and to pay a fine of $100."

The full penalty of the law, under the verdict, is two years in jail.

It is said that 200,000,000 francs are spent annually on automobiles in France.

Vanderbilt Cup Race Plans.

Arrangements for the Vanderbilt cup race and the elimination trial, to be held respectively on October 14 and September 23 next, were discussed at a meeting of the American Automobile Association racing board held August 10 in the Waldorf-Astoria, New York. It was a long session, lasting from 3 o'clock to 6 P. M., and was attended by the following members of the board: Robert L. Morrell, chairman; A. G. Batchelder, secretary; Col. E. H. R. Green, of Texas; R. Lincoln Lippitt, of Providence; A. L. Riker, of Bridgeport; Rolin H. White, of Cleveland, and T. H. Hilliard, of New York.

The meeting was closed to the press, but after it ended the chairman told of the decisions that had been reached with regard to the cup race and selection trials, and stated that another meeting of the board is to be held on September 1, when the rules for the race will be decided upon.

At last Thursday's meeting it was decided that the race shall be run in the opposite direction to last year's race, that is, left handed, or in the opposite direction to the movement of the hands of a clock. It was explained that the reason for this change was that the board, whose members also constitute the Vanderbilt cup race commission, wanted to have the contestants take the steepest hills on the up-grade, so as to minimize the danger. There is one hill, said Mr. Morrell, that would prove extremely dangerous if the race were run with the right hand to the pole.

The elimination race for the American team, on September 23, will almost certainly be run over a distance of 200 miles, over the same course as the cup race itself, the board being of the almost unanimous opinion that a trial equal to the full 300 miles of the final race would be too severe a test of the cars, while the shorter distance will be quite enough to determine their relative merits.

There are to be no controls or stopping places in either event, the contestants being started at two-minute intervals. The starting point is to be about an eighth of a mile from Mineola, where a grandstand with a seating capacity of 1,500 (about twice as large as last year's stand) is to be erected. The stand will be on the inside of the course, so that any part of the course can be reached quickly from it by the many roads within the circuit. The stand is to be built at an angle to the course, so that spectators may have a view of coming cars for a mile up the road without inconvenience.

In order that the commission may have its hands free to deal with the race alone, it has placed in the hands of Alfred Reeves, entire charge of the grandstand arrangements, including sale of the tickets—everything in connection with the stand, in fact, except its construction.

Special arrangements are to be made for the policing of the course and the maintenance of order and preservation of a clear road at the stand on both racing days. Three hundred Long Island men are to be sworn in as special officers to guard the course, and in addition a large detail of New York City special policemen, who will be off duty on the day of the race, is to be stationed at the grandstand to keep people off the course.

Crude oil is to be applied to the road surface, as was done last year, once a week, beginning this week, so that the course should be in excellent condition by the middle of October. It is estimated that the oiling will cost $4,000.

There are now twelve candidates for the American team, one car that was entered having been withdrawn. Seven of the twelve must be eliminated by the trial race on September 23. The race commission feels confident that France will be represented by a strong team, even should Théry and Caillois decline to defend France's possession of the cup, won last year by Heath.

Profiting by the experience of last year, when all available hotel or inn accommodations were taken well in advance, and garage facilities were inadequate, many of the entrants for the race this year have already taken advantage of the offerings of nearby hotels and inns. The White Sewing Machine Company has arranged for quartering its team and assistants at the Bull Head's Hotel, at the corner of the "Back Road" and the North Hempstead turnpike; the Pope-Toledo team will be housed at Krug's Hotel, on the Jericho turnpike, and the Franklin and Locomobile teams have reserved accommodations in the same locality—most of them from before the eliminatories until after the cup race. Quarters for the Fiat cars have been reserved at Poirrer's Garage, Garden City, and reservations have been asked for the Richard-Brasier and De Dietrich contingents as well. Demands for accommodations for others have also been made upon the hotels and road houses at Mineola, East Norwich, Roslyn, Lakeville and Hyde Park, and from present indications all available sleeping or garage accommodations will be taken long before the date of the race.

A CHECK TO LAW BREAKERS.

Special Correspondence.

SAN FRANCISCO, Aug. 9.—The record breakers who have their eyes on the San Francisco-Los Angeles record have just received a quietus to their ambition in a letter which has been sent out by Secretary Frey of the Automobile Club of California, indicating the club's disapproval of these contests and asking the authorities of the cities and towns along the route to arrest for breaking the speed laws any drivers who shall hereafter make the attempt. The letter has been sent to mayors, supervisors, chiefs of police and town trustees.

ATLANTIC-PACIFIC TOUR.

Megargel to Attempt Transcontinental Round Trip in Reo Car.

Percy F. Megargel, well known to the readers of THE AUTOMOBILE through his diary of the recent transcontinental trip from New York to Portland, Oregon, has returned from the Coast, and in a few days will leave New York City in an attempt to drive a 16-horsepower Reo touring car from New York to Portland, thence to San Francisco and back to New York by the Southern route. Several enthusiastic automobilists have made the transcontinental run, but so far no one has attempted the round trip.

Mr. Megargel will make the trip in the interest of the American Motor League, of which association he is a member, the main purpose being to gather reliable data with regard to the condition of the roads, the grades to be encountered, streams to be forded, distances from place to place, available stopping places and gasoline supply houses. The trip west will be made by the Northern route—practically the same as that traversed in the recent race to Portland; from Portland he will drive south to San Francisco, and return to New York by way of Salt Lake City and Denver. His detailed itinerary will be announced later.

Mr. Megargel will be accompanied by David Fassett, a skilled mechanic from the Reo factory. It is estimated that 112 days will be consumed before the tourists will arrive in New York again.

The *Reo Mountaineer*, as the car has been christened, is a regular stock touring car, of 16 rated horsepower. It is fitted with removable front seat, which will permit its occupants to sleep aboard when they may so desire. A 3-inch windlass has been built into the front of the frame, to be turned by a 14-inch detachable crank, for the purpose of aid in ascending unusual grades, or drawing the car through the many mud holes so often encountered in the Western roads. Two sprags have been fitted to each axle, and each sprag has welded to it a few inches from its lower end a flat steel plate about 4 by 6 inches, to prevent the sprags sticking too deep into sand or soft earth. A grademeter, speedometer, odometer, barometer and other instruments of value on such a tour have been added to its equipment, as well as a complete camping outfit for use in the wilds of the Rockies, or other ranges when inns or farm houses are not to be found.

GOOD ROADS CONVENTION.

Special Correspondence.

JAMESTOWN, N. Y., Aug. 12.—A Good Roads convention, to further the cause of the New York-Chicago Highway, concluded its sessions to-day at Lakewood, a nearby summer resort on the beautiful Lake Chautauqua. Chautauqua County, world famous as the location of the Chautauqua Assembly, and known throughout the country as a beauty spot in the most picturesque section of old York State, is noted also for poor roads. The convention called by the Chamber of Commerce of Lakewood, an organization composed chiefly of Jamestown business men, was attended by a representative body of farmers of this prosperous county, and it is believed that the discussion will mark the beginning of a good roads campaign.

W. F. Auld, of Pittsburg, a summer resident of Lakewood, was elected chairman, and Judge J. B. Fisher delivered the address of welcome. Interesting and practical talks on good roads, and how to get them, were delivered by James H. MacDonald, State Highway Commissioner of Connecticut, a veteran in the cause, and by Frank D. Lyons, Assistant State Engineer, of Binghamton, N. Y., and Col. William L. Dickinson, of Springfield, Mass., the "advance agent" of the New York-Chicago highway.

On Friday evening a moonlight excursion on Lake Chautauqua was the feature of local hospitality, and on Saturday night a banquet at the Kent House again gathered the delegates together before their departure for home.

ATLANTIC CITY RACES.

Club Promoting Events to Celebrate Opening of Meadow Road.

Special Correspondence.

ATLANTIC CITY, N. J., Aug. 14.—The Atlantic County Board of Freeholders, after a prodding by the Automobile Club of Philadelphia and the local Hotel Men's Association, have started work on the last link of the meadow road from here across to Pleasantville, and announce August 31 as the day of the opening of the new highway to travel.

The recently organized Atlantic City Automobile Club has postponed its opening tournament for a fortnight. On September 2 and 4 it proposes to celebrate the opening of the new pike by a two-day tournament over the beach course, at which fourteen races will be run. All the events, with the exception of that for cars from 1,432 to 2,204 pounds, on the second day, will be at one mile, the exception being for two miles. All the races will be from a flying start except two gymkhana events. Tidal conditions will be such that the races will begin promptly at 2 o'clock P. M. each day.

TOLEDO SPEED LIMIT.

May Be Raised as Result of Official Auto Inspection Tour.

Special Correspondence.

TOLEDO, O., Aug. 12.—Toledo automobile owners and local chauffeurs are pleased at the announcement of the city councilmen that they favor enacting a new ordinance which will fix the speed limit in this city, except on the downtown streets, at fifteen or twenty miles an hour instead of ten miles as now prescribed.

This announcement was made shortly after the annual municipal tour of inspection which was made a few days ago in automobiles donated for that purpose. The leading machine of the inspection party was driven at ten miles an hour, as shown by its speed indicator. This was too slow for the city officials, and at the end of the tour several expressed the opinion that there was no reason why fifteen miles an hour should not be allowed instead of ten, as at present.

Mayor Finch explained that owing to the absence of an ordinance providing for the issuance of licenses, there was no way in which speed violators could be apprehended, as it is difficult to distinguish the owners without numbers attached to the machines. It looks now as though an agreement will be reached between the mayor and the council which will result in a license ordinance as well as a proviso that the speed may be increased on the outlying streets.

Magneto ignition for motorcycles is increasing in popularity abroad.

ILLINOIS ASSOCIATION.

Organized in Chicago and Officers Elected—Purposes Outlined.

Special Correspondence.

CHICAGO, Aug. 12.—The new Illinois State Automobile Association was formally launched last Wednesday when some 100 enthusiasts from the local and out-of-town clubs met at the Chicago Automobile Club's house, drafted a constitution and by-laws and elected officers.

The delegates from the different clubs of central and northern Illinois, including those from Bloomington, Decatur, Aurora, Pontiac and Ottawa, made the tour in a body, arriving in the city on Tuesday noon. They assembled in Aurora Monday afternoon and spent the night there. Early Tuesday morning they traveled to La Grange, where they were met by the advance guard of the Chicago Automobile Club, headed by Secretary Sidney S. Gorham. Forty machines made the trip from La Grange to Chicago, piloted by Jack Fry in his Apperson car. They passed through Lyons, Berwyn and Oak Park, and arrived at the Chicago Automobile Club's quarters about 1 o'clock, where an informal reception was held. After luncheon the tourists took a jaunt through the parks and boulevards of the city, escorted by several cars from the local club. In the evening the White City was visited and many of the sights were enjoyed.

On Wednesday more than 100 enthusiasts met at the clubhouse and drew up the constitution for the new Illinois State Automobile Association. Sidney S. Gorham was elected president, and the other officers chosen were: First vice-president, Samuel P. Irwin, of Bloomington; second vice-president, L. E. Meyers, Chicago; third vice-president, George W. Ehrhart, Decatur; secretary, N. H. Van Sicklen, Chicago; treasurer, H. N. Taylor, Chicago.

The following persons were elected directors: Ira M. Cobe, Chicago; L. E. Meyers, Chicago; John Farson, Chicago; S. S. Gorham, Chicago; N. H. Van Sicklen, Chicago; S. P. Irwin, Bloomington; Burt Vancil, Springfield; George W. Ehrhart, Decatur; H. A. Olson, Woodstock; Jesse Barker, Peoria, and L. Shumway, Rockford.

The objects of the association are to further the work of building good roads, secure favorable legislation throughout the State, and to obtain a uniform speed limit, if possible.

In the evening a run was made to Edgewater, where the golf club entertained with a dance. The tourists left for their respective homes on Friday.

AUTOISTS FLOCK TO JERSEY COAST.

Special Correspondence.

ASBURY PARK, N. J., Aug. 12.—Dealers declare that automobile owners are all away from the cities on vacation trips through the country, and a glance at the array of cars that can be seen on the three main avenues of this resort at any hour of the day bears out the statement. Nearly as many automobilists may be seen on Ocean and Grand avenues as horses, and there is more pleasure riding in automobiles this year than in carriages. The excellent roads throughout Monmouth county are largely responsible for the number of motorists that are attracted to this part of the New Jersey coast.

On a recent Sunday night Zacharias' garage, on Main street, held machines whose estimated worth was $100,000. From this statement some idea of the amount of money

tied up in automobiles now in this part of the state can be had.

While at least two New Jersey coast resorts claim to possess beach race courses which compare favorably with the famous Daytona stretch in Florida, Asbury Park will never be able to offer automobilists such an attraction. The beach all along the northern and central portions of the coast is too narrow, soft and shelving to warrant its use for driving or automobiling.

ROCHESTER GARAGE AND CLUBROOM.

In the accompanying illustration is shown the new establishment recently opened in Rochester, N. Y., for the sale and care of automobiles by the United States Automobile Company. It is known as the Plymouth Avenue Station, being located at Nos. 21 to 29 Plymouth avenue, next to the corner of West Main street. The building occupies a lot 140 by 130 feet, and comprises a one-story garage 100 feet square and one-story machine shop 100 by 40 feet, and a two-story building devoted to a salesroom 75 by 50 feet and large offices on the first floor and club rooms above.

The club quarters, which are furnished free of cost to the Rochester Automobile Club for one year, comprise a commodious assembly room, the secretary's office and a room for the wives and daughters of members. The decorations of the rooms are dark green with cream colored ceilings, and the furnishings are in mission style, with prairie grass carpets. A deep fireplace in the assembly room adds warmth and cheer in cold weather, while three of the corners are occupied by massive settees. The reading tables are constantly supplied with current automobile literature. Music lovers may enjoy the use of a piano donated by George G. Foster.

The atmosphere of a cartographer's office is given to the secretary's room by a large blueprint map of western New York State on a scale of a little less than three miles to the inch, on which are indicated the principal roads and their character. In addition to the map, there is an atlas given to the club by C. F. Garfield, which shows on a large scale every State in the Union, Canada and Mexico, and also foreign countries.

A gain of 126 members during the last year was reported by ex-Secretary C. F. Garfield in his report read at the annual meeting held the middle of July. This made the total membership at that time 159. The club is one of the most active in New York State, doing much useful work in the matter of marking the roads in its section, fighting objectionable automobile legislation, and protecting its members against persecution under the speed laws. The club has already placed guide-posts along the roads from Rochester to Lyons, to Sodus Bay, to Buffalo, and to Geneva, and is about to issue route cards like those of the Automobile Club of America, but for the western section of the State. The preparation of these cards is in the hands of the new secretary, Frederick H. Crum.

The location of the club rooms gives members the utmost convenience in the matter of storage and repair of cars. The machine shop is equipped with $5,000 worth of machine tools, forge, air compressor and similar conveniences. Owners of many cars have especial facilities for the replacement of parts, since the United States Automobile Company handles the Pierce, Thomas, Stevens-Duryea, Orient, Buick, Olds and National cars, and a large line of supplies. A special station for electrics is conducted by the company on Park avenue, in the best residence district of Rochester.

BUFFALO ORPHANS' DAY.

Eight Hundred Made Happy by Outing Given by Automobile Club.

Special Correspondence.

BUFFALO, N. Y., Aug. 12.—More than 800 youngsters, inmates of Buffalo's orphan homes, had "the time of their lives" on Wednesday when the local automobilists gave them an outing. Very few of the children had ever before taken an automobile ride, and the joy with which they realized hopes that had been fostered in their little breasts for weeks can only be imagined. And they were not the only ones who enjoyed the event. Many "grown-ups," members of the Automobile Club of Buffalo, and other machine owners, delighted in the outing.

The weather was ideal. Secretary Dai H. Lewis, of the Automobile Club, mustered 140 automobiles at 2 o'clock in the vicinity of the club's rooms at Main and Edward streets. The cars lined up for blocks around, and the arrival of 120 boys from Father Baker's institution, with the boys' band, was the signal to start. President Knoll then swung his car into line at the head of the procession and off they went.

As the cars moved down Main street the curb was lined with spectators. From the Terrace the parade passed to Franklin street and thence to Police Headquarters for review by Superintendent Bull, and to the City Hall, where Mayor Knight stood on the steps and bowed to the children. After driving a few blocks on Delaware avenue they all made for Athletic Park, one of Buffalo's pleasure resorts. A special gateway had to be made through the fence near the main entrance, and after all the children were in the real fun began. Every door was wide open, and concessionaires vied with Manager Walter of the park in the attempt to make the day one of perfect happiness for the children.

It had been intended to make a run to Tonawanda, but at 5 o'clock the children and many of the nurses who had charge of them were so tired that it seemed wise to abandon the trip. The cars took a jaunt around Delaware Park and the Zoo, and then carried the tired little people home.

SPRINGFIELD COMPANY IN NEW HOME.

Special Correspondence.

SPRINGFIELD, MASS., Aug. 12.—The new Cooley House Garage, just occupied by the Springfield Automobile Company, embodies most modern features, as well as being probably the largest in this section. The building has a frontage on Liberty street of 100 feet, and its depth of 117 feet gives a floor space of nearly 12,000 square feet.

The garage is of buff brick, one story high, and its front is largely of plate glass. The main office occupies the middle section of the front of the building, opening directly from the street. At its rear is a private office and women's waiting room. A corridor between these two enters the stock room. The boiler room occupies the rear right hand corner of the building and is slightly below the floor level. A men's waiting and smoking room is over this, a little above the main floor. The furnishings are modern throughout.

The Springfield Automobile Company is the oldest in the city, having been organized five years ago. The company has the local agency for the Stevens-Duryea and Locomobile, and, in addition, conducts a repair and storage business.

BATTERY COMPANY ELECTS OFFICERS.

Special Correspondence.

BUFFALO, N. Y., August 12.—Several changes were made in the officers of the National Battery Company of this city at a meeting of directors held several days ago. R. L. Coleman, of Somerset, Va., who was formerly president, is succeeded by J. R. H. Richmond, of this city. Mr. Coleman was elected chairman of the board of directors. James MacNaughton was elected vice-president, and Ralph Kimberly secretary and treasurer.

OPEN AT ALL HOURS.

Special Correspondence.

SAN FRANCISCO, Aug. 10.—The Park Commission has made another concession to automobile owners. The South Drive of the park, which has been open to automobiles only until 11 o'clock, may now be used all night. This is the only park road which may be used later than 6 o'clock. The new rule is an informal one, the ordinance closing the road after 11 o'clock remaining in force, but instructions have been given to the park police not to make arrests on the South Drive after the hour named, provided the automobile parties are behaving in a decorous manner and not exceeding the speed limit.

While a test case of this ordinance was to have been made in the courts, the Commissioners state that the change has not been made on this account, but at the request of physicians, who state that the park roads offer them the shortest route to their patients in the Sunset district.

UNITED STATES AUTOMOBILE CO.'S GARAGE—HOME OF ROCHESTER AUTOMOBILE CLUB.

Bartlett & Frazier are conducting an automobile livery business at Huntington, Ind.

The Marstan Luncheon Rooms, of Boston, have added to its delivery service two Pope-Waverley electrics.

The Minneapolis Automobile Club is planning a two-day race meet to be held at the Hamline track early in September.

The Pope Motor Car Co., of Indianapolis, shipped last week three Waverley road wagons to Count A Faa di Bruns, Florence, Italy.

The Olive Automobile Co., 3970 Olive street, St. Louis, has secured the agency for the Wayne cars, as has also Charles Wilde, of Baraboo, Wis.

Willy Tischbein, president of the Continental Caoutchouc Company, of New York, has been elected a director of the parent company, of Hanover, Germany.

Commodore W. K. Vanderbilt, Jr., of the Seawanhaka Yacht Club, New York, has presented a trophy for a 100-mile auto-boat race to be contested on the Sound in September.

Bush & Burge, Seventh avenue and Main street, Los Angeles, have secured the Southern California agency for the Pierce Great Arrow. This agency was formerly held by L. H. Johnson, of Los Angeles.

The Reo Motor Car Company, of Lansing, has arranged to take over the Cleveland agency and operate it as a branch of the company. C. F. Gilmer, the present manager of the Cleveland agency, has been retained.

William Jose has been elected manager of the National Automobile Co., of Washington, D. C., succeeding John C. Wood, resigned. Mr. Wood, it is understood, will form a company for the purpose of handling second-hand automobiles.

The Michigan Automobile and Carriage Body Company, of Detroit, has been purchased by G. E. Mann, who becomes sole proprietor of the company, and will conduct the business under the name of the Michigan Auto Buggy Co.

Leonard E. Wales, of Wilmington, Del., has been appointed local counsel for the recently organized Auto Protective League, headquarters for which have been established at the office of the Delaware Auto Storage and Repair Co., Wilmington.

Arrangements are already being made by the Veeder Mfg. Co., of Hartford, Conn., for making odometer and tachometer fixtures for 1906 cars, as it is anticipated that the leading manufacturers will finish large lots of their cars at an unusually early date.

Through a compositor's error the horsepower of the Lambert automobile, Model 6, was given as 13 in the advertisement of The Buckeye Mfg. Co., on page 72 of the ADVERTISING SECTION of THE AUTOMOBILE of August 3. This should have read 16-horsepower.

The Motor Car Equipment Co., successor to Emil Grossman, importer and manufacturer of automobile accessories, has removed from 43 Cortlandt street, New York City, to more commodious quarters at 55 Warren street, where it now occupies an entire building of three stories and basement. The company has issued three separate catalogues this season, and a fourth is now in course of compilation.

D. W. Henry, a salesman for the Electric Vehicle Company, of Hartford, is now visiting the trade between New York and Chicago, touring from place to place in a 40-horsepower Columbia.

The Union Garage, 4601-4603 Olive street, St. Louis, is now occupying its new garage. The building is two stories in height, 50 by 115 feet, and is so constructed that there are no pillars to obstruct the first floor space. The company handles the Union and Monarch automobiles.

The Pittsburg Automobile Company has been organized at Pittsburg, Pa., and applied for a state charter. The incorporators named are James Frances Burke, C. L. Roberts, E. T. Brockman, S. R. Ireland and H. C. Ward. The company will manufacture motor vehicles.

The Central Body Company, Connersville, Ind., will soon commence the erectio of a factory building, 66 by 77 feet, and four stories in height. The new structure will be of brick and iron, and so constructed as to permit of additions being made from time to time, as may be required.

The drivers of the Fiat cars that will represent Italy in the Vanderbilt Cup race have been announced, as follows: Lancia and Nazarri, of the 1905 Gordon Bennett team; Louis Chevrolet, Paul Sartori and William Wallace. Sartori and Wallace, it will be recalled, drove in the Vanderbilt race last year.

The Atwater Kent Mfg. Works, makers of ignition specialties, formerly located at 112 North Sixth street, Philadelphia, are now occupying new quarters at 42, 44 and 46 North Sixth street. The new building is a modern fireproof structure, and gives considerable increase in floor space over that of the former quarters.

The Electric Vehicle Co., of Hartford, shipped more than sixty Columbia cars to France during July, most of which were electrics. S. Bianchi, Continental representative for this company, at 194 Boulevard Malesherbes, Paris, sailed this week for France, after having spent several weeks at Hartford and New York.

The selectmen of the town of Northborough, Mass., are the first to comply with the letter recently circulated by the Automobile Club of Worcester with regard to posting cross roads, and also the placing of sign boards giving the rates of speed prescribed within the town limits. Signs to this effect were posted last week.

Automobile imports into the United States this year show a marked increase over 1904. During the month of July ninety-eight automobiles were received at the Port of New York, against fifty-five for the same month in 1904. For the seven months ending with July, 533 machines were received at New York, against 316 for the same period in 1904.

The *Flying Dutchman III*, the new auto boat of H. L. Bowden, of Boston, capsized Sunday afternoon off Tom Moore's Rock, near Marblehead, Mass. The accident was due to Mr. Bowden making too sharp a turn. No one sustained any injury by reason of the accident, and the boat was soon bailed out, righted and towed to the Corinthian Yacht Club's float near by. Aboard the boat at the time of the mishap, besides Mr. Bowden, were H. H. Whitlesea, the builder, and Charles Biscoe, engineer.

The new garage of the Bellevue-Stratford Hotel, Philadelphia, which was only completed about two months ago, has proved to be inadequate for the needs of the patrons of the hotel, and arrangements have been made for a three-story addition, for storage purposes, as 1,405 Locust street. A building permit has been issued for the structure, which, it is estimated, will cost $7,000.

The Cook & Stoddard Co., of Washington, D. C., has leased for a term of years the large building at the corner of Twenty-second and P streets, formerly used as a riding academy, and will occupy it as a garage and salesroom in addition to its present quarters on Connecticut avenue. The company is Washington agent for the Winton, Locomobile, Cadillac, and Baker electric automobiles.

Robert W. Spangler and Sidney J. King, of Chicago, are now compiling automobile route books covering the main roads leading from the principal cities of the country. They are using a Reo car, and are first working on the route from Detroit to Niagara Falls. In the route books will be recorded detailed descriptions of the roads, character of the road bed, grades and distances from town to town, as well as location and character of hotels, garages, repair shops and gasoline stations.

RECENT INCORPORATIONS.

Milwaukee Automobile Engine and Supply Co., Milwaukee; capital, $6,000. Incorporators: Fred Lederer, B. Amann and John McCabe.

Euclid Garage Co., Cleveland, O.; capital, $50,000. Incorporators: E. C. Root, C. T. Snyder, C. E. Hourist, J. O. Boylan and J. M. Shellenberger.

Automobile Touring Co., Springfield, Mass.; capital, $4,000. Automobile garage. Incorporators: Adolf A. Geisel, Merrill T. White and Barte J. Griffin.

Miami Motor Car Co., Dayton, O.; capital, $25,000. Incorporators: Pierce Schenck, Charles E. Drury, W. W. Arnold, R. A. Herhruck and Carroll Sprigg.

Du Brie Motor Co., Detroit, Mich.; capital, $20,000. To take over the business of S. R. Du Brie and John D. Austin. Incorporators: John S. Austin, S. R. Du Brie, S. A. Commons and W. E. Nageborn.

Automobile Outing Co., Baltimore, Md.; capital, $1,000. Automobile dealer. Incorporators: Richard Keating, Jack O. H. Smith, Jr., Addison E. Mullikin, William C. Conwell and Roland R. Marchant.

Carlson & Russ, Richmond Borough, New York City; capital, $5,000. To manufacture engines, motors, car trucks and vehicles. Incorporators: Charles O. Carlson, John D. Russ and Carl A. Erickson.

Standard Automobile Co., New York; capital, $500. To manufacture automobiles, motors, engines, etc. Incorporators: Edward Stetson Gripping, New Rochelle; George A. Burkhard and John G. Craig, of New York.

South Bend Machine Mfg. Co., South Bend, Ind.; capital, $50,000. To manufacture and sell machinery, tools, vehicles of all kinds, including automobiles. Incorporators: David McHenry, George Brown, Henry M. Huston, Elmer J. Martin, William Koeller, Stuart, MacKibbin and Shirley Reynolds.

THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, AUGUST 24, 1905—CHICAGO No. 8

HEMERY IN DARRACQ WINS ARDENNES CIRCUIT.

From Our Own Correspondent.

BASTOGNE, BELGIUM, Aug. 7.—Hémery won the Ardennes Circuit today in the heavy car class in a Darracq in 5 hours 58 minutes 32 seconds for the 600 kilometers (372.82 miles), or at an average speed of 61.82 miles an hour. Tart was second on a Panhard in 6:13:37 4-5; Le Blon, third, also in a Panhard, in 6:22:56; Wagner, fourth, in a Darracq, in 6:24:10 1-5; Heath, fifth, in a Panhard, in 6:24:20.2-5; De Caters, sixth, in a Mercedes, in 6:40:27; Duray, seventh, in a De Dietrich, in 7:18:28, and Montjoie eighth, in a Darracq, in 7:52:11 2-5.

The Darracq team not only wins the race, but also captures the regularity trophy with the positions of first, fourth and eighth, for while Panhard cars took second, third and fifth positions, Le Blon, who ran third, does not figure in the competition for this trophy, the official Panhard team consisting of Heath, Tart and Teste.

The finish of the race was a most impressive sight as Hemery rushed down the hill toward the grand stand, followed closely by Le Blon, just finishing his fourth round. Hemery, who had started first, had gained nearly a full circuit before Le Blon was sent away, last of the twelve contestants. Owing to the breaking down of the Italian car Itala, driven by Fabry, in the second round, and the withdrawal of Jenatzy in the third round, the international element had been lost, and this moderated the expressions of enthusiasm on the arrival of the winner.

HEMERY IN DARRACQ WINNING THE ARDENNES CIRCUIT, FOLLOWED BY LE BLON IN PANHARD ON HIS FOURTH ROUND.

The second man to finish was Tart, fifteen minutes behind the winner. Le Blon, Wagner and Heath struggled very hard for third position. Baron De Caters ran a plucky race as one of the Mercedes team. For some time he had been suffering from rheumatic trouble, causing much loss of sleep, and when he started in the race he was unable to wear his boots. Teste, of the Panhard team, who was leading well on the fourth round, was unable to finish the race, owing to an accident to his steering gear. All the French cars were fitted with Michelin tires, while the two Mercedes were equipped with Continentals.

The race for heavy cars was run Monday, following races for motorcycles and light cars or voiturettes run Saturday. It was the fourth annual Ardennes meeting, instituted in 1902 by Baron de Crawhez, over the Ardennes course, which has come to be known as the "track circuit" because of the splendid surface condition of the road, its width, its total absence from difficult turns and controls or neutralizations. As a result of these conditions, it furnishes the fastest times in long-distance racing. Its natural qualities render such elaborate preparations as were made for the Gordon Bennett on the Auvergne circuit quite unnecessary, yet nothing was neglected to aid nature, as is shown by the expenditure of $8,000 for the tarring of the eighty miles of the circuit, 800 tons of tar being used for the purpose, and by a subvention of $100,000 from the Minister of Public Works to be expended on improving the surface of the road. The Ardennes course was not guarded by military, as was the Auvergne, but barriers had been erected wherever necessary, plenty of gendarmes were stationed around the circuit, and large placards warned the public that anyone crossing the road ran the risk of being killed. A small flag indicated each kilometer of the course, and yellow flags were used to indicate danger and to signal for stops.

The weighing-in of the heavy racers entered for Monday's race took place at Bastogne on Saturday afternoon. Most of the competitors and interested persons had been present at the motorcycle races in the morning, and as soon as these were over there was a joyous procession of cars back to Bastogne. Operations were rapidly gone through, all the cars being found to be within the limits, and there was nothing to be done officially until Monday morning.

Only fourteen cars were weighed in—the English Wolseley, the Clément-Bayard and the Italian Fiat, whose participation was doubtful until the last moment, failing to compete. The reduced numbers were made up of four Panhard-Levassor cars, piloted by Heath, Teste, Le Blon and Tart; one C. G. V., steered by Behr; three Darracq (one of them being in the light car class), driven by Hémery, Wagner and Montjoie; three De Dietrich, by Gabriel, Duray and Rougier; two Mercedes, by Jenatzy and De Caters, and one of the new Italian cars, Itala, piloted by Fabry.

Everybody was afoot early Monday morning, for the first car was to be sent away at 6:30, followed at four-minute intervals by its competitors. The weather conditions the previous day had not been at all favorable, but Monday morning gave promise of a fine day, a promise which was more than fulfilled, for not a drop of rain fell during the race, and the sun, though bright, was not so hot as to make matters uncomfortable. All arrangements were perfect. A big grandstand had been erected over the road, and as one watched the racers rush down the hill at seventy miles an hour and disappear under the stand, even the most phlegmatic could not help being carried away by the enthusiasm of the sport. A grandstand had been especially erected on one side of the road for the press (an attention which might have been shown at Auvergne), and opposite were the starters' and timers' boxes and the scoring board.

Promptly at 6:30 o'clock, before a large crowd, consisting not only of sightseers of the surrounding country but of a big proportion of the motor experts of France, Germany, Belgium, and a general foreign element, the first start was given. The car was the C. G. V. which had such an unfortunate smash last June in the eliminating trials. Painted in red and gold, with its low radiator, its original slotted frame and its powerful driving gear, it gave one the impression of tremendous power and speed. Behr, who was reported to be a clever driver, held the wheel, and close by stood Girardot, leaning on two canes, having not yet recovered from his accident in the Auvergne elimination race, and watching with keen interest the starting operations.

The word to go was given. Carried away by nervous excitement, Behr let his clutch in with a thud. The car made a jump of ten or twelve yards and stopped dead, the motor continuing to turn at a terrible speed and with a tremendous roar. The fierce start had broken the cardan joint. Behr descended from his seat as pale as death. Girardot hobbled up on his two sticks, shrugged his shoulders and turned away. All the other cars went away regularly, with the exception of the Panhard-Levassor of Teste. A few minutes before the starting time one of his tires had burst, and the car was started with a delay of two minutes.

The official times taken at the 100-kilometers post showed the following positions and times:

1, Wagner (Darracq), 55 min. 18 sec. (an average speed of 67.4 miles an hour); 2, Hémery (Darracq), 57:03; Rougier (De Dietrich), 57:04; Tart (Panhard), 57:11; Jenatzy (Mercedes), 57:30; Duray (De Dietrich), 58:24; De Caters (Mercedes), 59:32; Teste (Panhard), 1:00:03; Heath (Panhard), 1:01:24; Fabry (Itala), 1:01:56; Le Blon (Panhard), 1:07:45 4-5; Montjoie (Darracq), 1:11:52.

Le Blon's Panhard, the last car to start, had not long disappeared around the bend of the road which hid it from the sight of those on the grandstand when the first car

Positions and Times by Rounds.

Following are the positions and times for each of the five rounds of the circuit:

FIRST ROUND.

Position.	Driver.	Car.	Time.
1	Wagner	Darracq	1:04:22
2	Tart	Panhard	1:05:40
3	Hemery	Darracq	1:05:44
4	Rougier	De Dietrich	1:05:58
5	Jenatzy	Mercedes	1:06:21
6	De Caters	Mercedes	1:08:38
7	Teste	Panhard	1:08:57
8	Fabry	Itala	1:09:45
9	Heath	Panhard	1:11:47
10	Le Blon	Panhard	1:16:30
11	Montjoie	Darracq	1:22:07

Wagner averaged 68.63 miles an hour for the circuit.

SECOND ROUND.

Position.	Driver.	Total time.	Time for round.
1	Rougier	2:10:19	1:04:21
2	Jenatzy	2:14:44	1:08:23
3	Hemery	2:16:13	1:10:29
4	Tart	2:17:29	1:11:49
5	Wagner	2:18:51	1:14:29
6	Teste	2:26:29	1:17:32
7	Le Blon	2:32:16	1:15:46
8	Duray	2:34:16	1:26:37
9	Heath	2:39:57	1:28:10
10	De Caters	2:40:35	1:31:57
11	Montjoie	2:48:22	1:26:15

Rougier averaged 68.65 miles an hour, making the fastest round in the entire race.

THIRD ROUND.

Position.	Driver.	Total time.	Time for round.
1	Hemery	3:23:32	1:07:19
2	Teste	3:38:27	1:11:58
3	Tart	3:39:48	1:22:19
4	Wagner	3:41:47	1:22:56
5	Le Blon	3:51:04	1:18:48
6	Heath	3:51:50	1:11:53
7	De Caters	4:01:05	1:20:30
8	Montjoie	4:33:06	1:44:44
9	Duray	4:40:54	2:06:38
10	Jenatzy	5:04:21	2:49:37

Hemery averaged 65.63 miles an hour.

FOURTH ROUND.

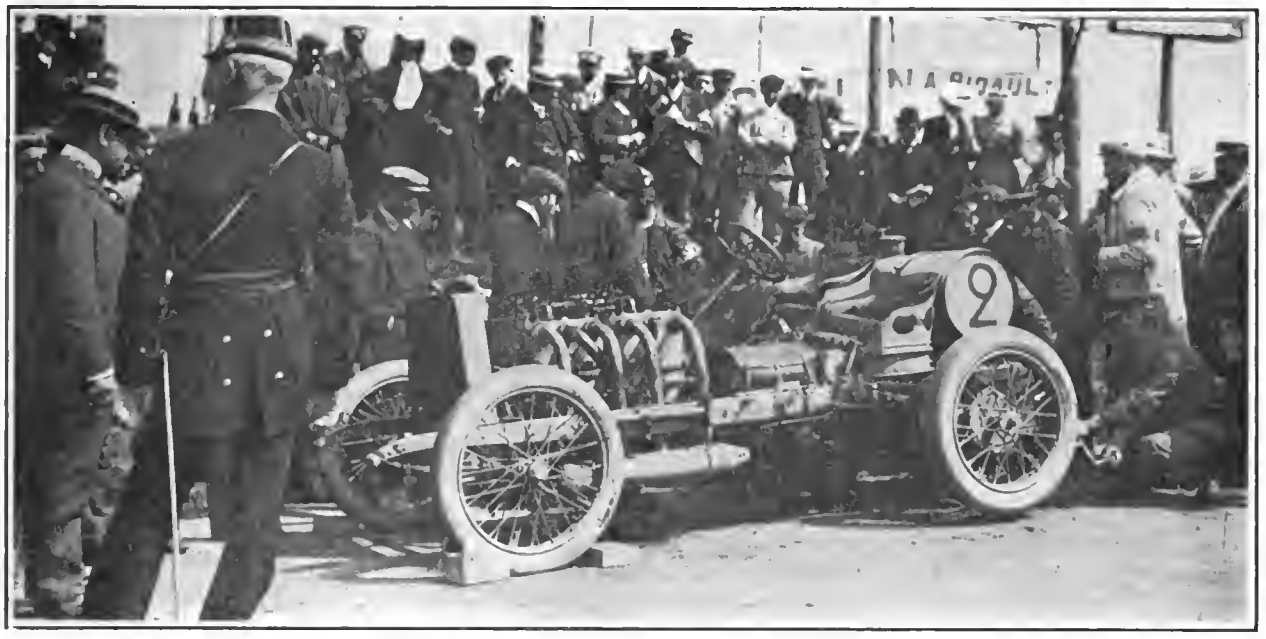
Position.	Driver.	Total time.	Time for round.
1	Hemery	4:44:03	1:20:31
2	Teste	4:51:31	1:13:04
3	Tart	4:54:03	1:14:15
4	Le Blon	5:10:33	1:19:29
5	Wagner	5:12:11	1:30:24
6	Heath	5:14:22	1:21:32
7	De Caters	5:22:26	1:22:21
8	Duray	6:01:30	1:20:36
9	Montjoie	6:19:11	1:46:05

Teste's average speed was 60.52 miles an hour.

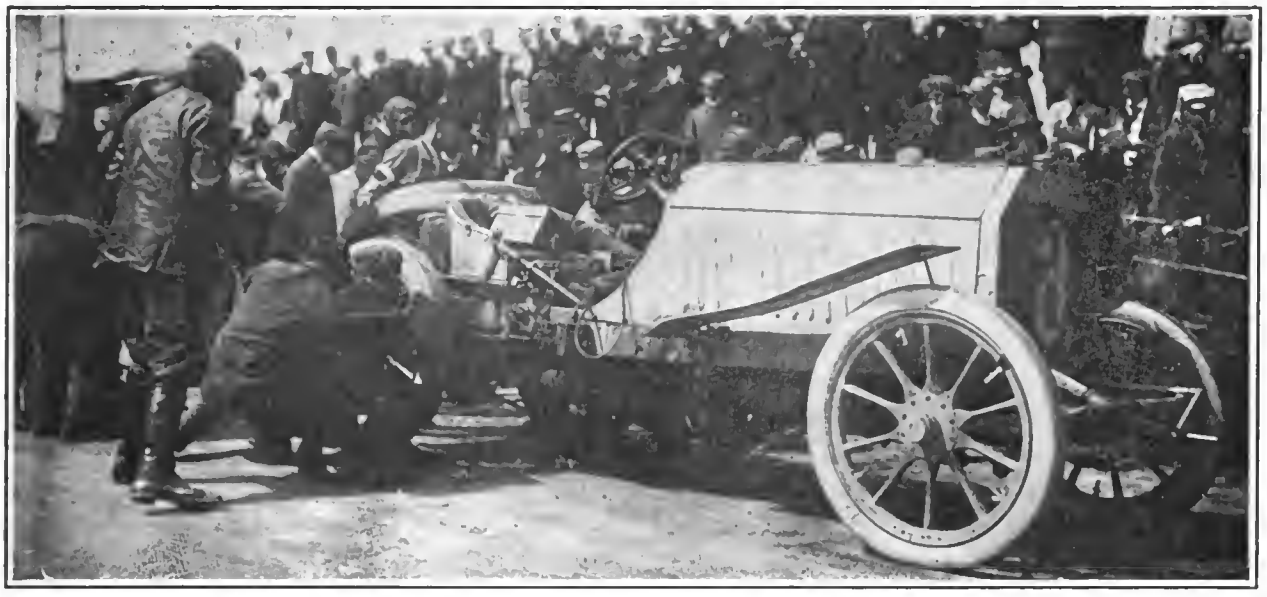
FIFTH ROUND.

Position.	Driver	Total time.	Time for round.
1	Hemery	5:58:32	1:14:29 1-5
2	Tart	6:13:37 4-5	1:19:34 4-5
3	Le Blon	6:22:56	1:12:23
4	Wagner	6:24:10 1-5	1:11:59 1-5
5	Heath	6:24:20 2-5	1:09:58 2-5
6	De Caters	6:40:27	1:18:00 1-5
7	Duray	7:18:28	1:16:56
8	Montjoie	7:52:11 2-5	1:33:00 2-5

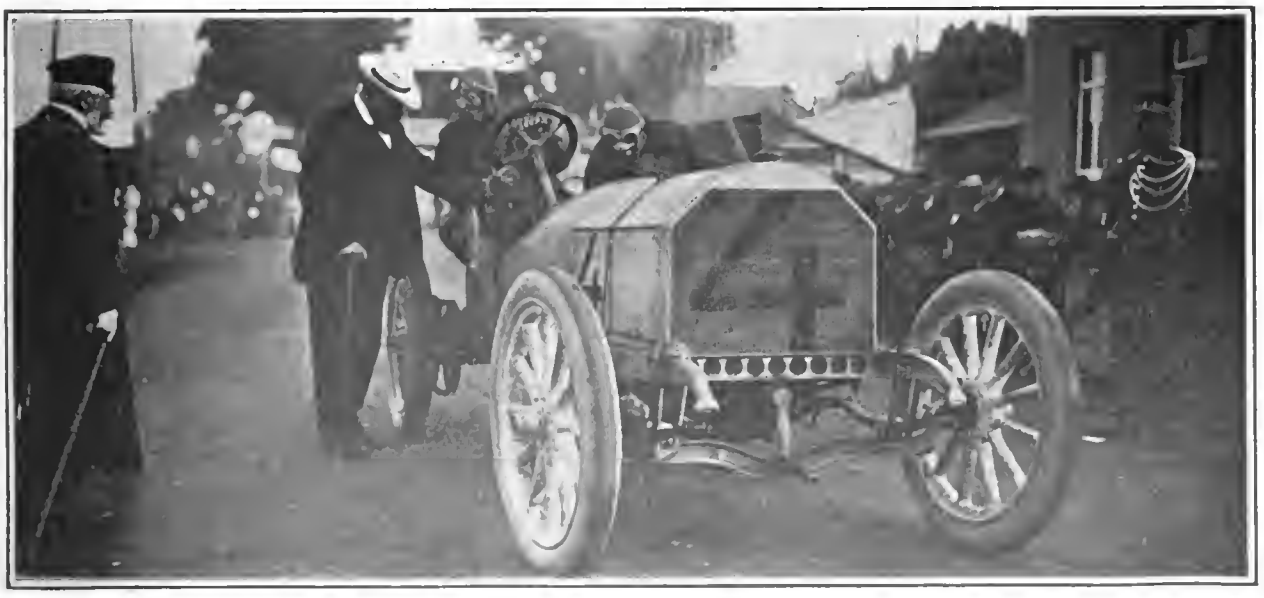
Heath, who made the fastest time in the last round, averaged 63.14 miles an hour.



HEMERY'S DARRACQ RACER WHICH FINISHED FIRST IN THE ARDENNES CIRCUIT, AVERAGING 61.82 MILES AN HOUR.



ROADSIDE TIRE CHANGE ON HEATH'S PANHARD RACER IN ARDENNES CIRCUIT—HE AVERAGED 63.14 MILES IN LAST ROUND.



JENATZY AT THE WHEEL OF HIS MERCEDES RACER TALKING TO BARON DE ROTHSCHILD BEFORE THE START.

GABRIEL'S DE DIETRICH CAR AFTER THE ACCIDENT WHICH PUT HIM OUT OF THE RACE—NEITHER GABRIEL NOR HIS MECHANIC WAS HURT.

to finish the round was announced to be coming. It proved to be Hémery, who started first and had not been passed by his followers. His time was 1:05:44. A few seconds later Jenatzy rushed past in 1:06:21, having passed Gabriel on the round. Wagner came next, having made the fastest time for this first round, 1:04:22. Rougier was close behind in 1:05:58; his companion, Gabriel, did not turn up, however. It was learned afterwards that he had been the victim of an accident very similar to that of Farman in the Gordon Bennett trials. A tire burst, the car turned a somersault and went over the edge of the road. Although severely shaken, neither driver nor mechanic was seriously injured, and both got around to Bastogne later. De Caters, Le Blon and Montjoie all had trouble with their tires, and finished the first round late.

At the end of his second round Hémery was going well; tire trouble had, however, delayed him somewhat, and he was hotly pursued by Jenatzy, who seemed determined to regain the glory he had lost since the Taunus Gordon Bennett race. Rougier, Tart and Wagner—the last-named having also been the victim of tire troubles—were all going well, and the race seemed to lie between these five. Le Blon, Duray, Heath, De Caters and Montjoie were all far down in the list, and did not appear to have much chance of winning. The Italian car Itala had had to join the list of the *hors de combat*, owing to a leakage of water. It had, however, done very fast time on the first round, showing 1:01:56 for the 100 kilometers (62 miles).

At the end of the third round Hémery, on the Darracq, had got a good lead. The redoubtable Jenatzy, who was leading him on the previous round, did not turn up. When within four kilometers of the end of the third round one of his tires burst, and for a short distance he ran on the rim. When he stopped and tried to make a change he found that the flange had been bent in and so much damaged that it was impossible to fit another tire. Jenatzy thus found himself out of the race.

When Hémery finished his fourth round it was plain that, barring accidents, the race was in his hands. Behind him the two Panhard cars driven by Teste and Tart were running well, followed by Le Blon, Wagner and Heath, all grouped together, with De Caters, Duray and Montjoie well down in the list.

Motorcycle and Voiturette Races.

The motorcycle and voiturette races were run the preceding Saturday over what is known as the "little circuit," the southern corner of the big circuit, and having a total distance of 40 kilometers 240 meters. This was covered five times, giving a total nonstop run of 201 kilometers 200 meters (125.02 miles).

Rain had fallen all Friday night, and when the competitors came together in the market place of Arlon at 7 o'clock Saturday morning the weather was still unfavorable. However, a clearing in the sky seemed to denote improving atmospheric conditions, and exactly at 7:15 A. M. Giuppone, on a Peugeot motorcycle, was sent away, to be followed at one minute intervals by the remaining twenty-three motorcycle competitors and the three voiturettes. They comprised five Peugeot, four Griffon, three Adler, three Alcyon, three Sarolea, two Primrose, one Z. L., one Prevot and one Verschaere, four of which were in the class for motorcycles weighing more than 50 kilos (110 pounds), and the remainder in the class weighing less than 50 kilos. The voiturettes were two Grégoires and a Darracq.

Eleven motorcycles finished the course, Bucquet on a Griffon machine fitted with Dunlop tires coming in first in 2:12:49 1-5, having covered the course at an average speed of 90 k. 892 m. (56.4 miles). Lamberjack (Griffon) finished second in 2:25:28 1-5, and Demcester, also on a Griffon, third in 2:30:36 4-5. Thomas, who started sixth in the race, had worked up at the end of the first round to second position, having only Giuppone ahead of him. On the next round he passed him and took first position, which he maintained until the end of the race. He had only been at the finishing point a few seconds, however, when Bucquet, who had started nine minutes after him, rushed up and secured first place with a good margin.

That was not Thomas' only misfortune, however, for during the race his gasoline tank being in danger of breaking loose, he had secured it with a stout strap. This brought his machine just over the 50 kilometers limit, and notwithstanding a thorough cleaning of every part of the machine it was found impossible to make the scales register less than a few grammes over the regulation weight. As a consequence, despite his second fastest time, 2:21:53 2-5, Thomas found himself disqualified.

Although there were only three starters in the race for voiturettes, a keen race was witnessed. One of the Grégoire cars quit on the first round, leaving only Wagner on a Darracq and Taveneux on a Grégoire to compete. On the first round Wagner lost more than ten minutes changing a burst tire. Little by little, however, he regained his position, jumping from a seven minutes' loss on the second round to a lead of one minute on the third, five minutes on the fourth, and finishing a little more than five minutes before his rival, their respective times being: Wagner, 2:46:37 4-5, average speed 72 k. 458 m. (45.02 miles) per hour; Taveneux, 2:51:51 1-5.

Synopsis of Previous Races.

Previous records on the Ardennes circuit are as follows:

In 1902, out of fifty-six competitors, Jarrott, on a Panhard-Levassor, won with an average speed of 86 k. 820 m. (53.9 miles) an hour. Baron Pierre de Crawhez won the 100-kilometer cup in 1:02:25 3-5.

In 1903 there were 37 heavy cars, 13 light cars and 18 motorcycles. The Panhard-Levassor firm again won, Baron de Crawhez making an average speed of 87 k. 309 m. (54.25 miles) an hour and covering the 100 kilometers in 1:05:23.

In 1904 there were 33 heavy cars, 2 light cars and 36 motorcycles. Heath secured a victory for the Panhard firm by an average speed of 91 k. 476 m. (56.84 miles) an hour. Duray, with a Darracq, obtained the 100-kilometer cup in 1:03:14 3-5.

The outlook for automobiles in Australia is decidedly encouraging, says United States Consul Goding, of Newcastle, N. S. W. There are 480 cars in use in New South Wales, while in Victoria there are 530, ranging in value from $10,000 downward. Throughout New South Wales and Victoria the roads are good and are well maintained, and as there is very little rain, the conditions for the use of automobiles are said to be most favorable. Automobiles are coming into use for the transportations of passengers and freight where railroads are not available. One man, who covers a mail, passenger and parcels route of seventeen miles each day, is arranging to use two automobiles for the work. Country physicians and traveling salesmen are making good use of the machine. The consul states that opportunities for American machines are good if the requirements are carefully studied.

Handling of an Air-Cooled Gasoline Car.

By HARRY B. HAINES.

(*Concluded from page 165, issue of August 10.*)

The Radiating Surface.

DESPITE the great increase in radiating surface gained by using various types of studs or pins, despite power-driven fans and despite every other precaution, an air-cooled motor is bound to develop heat to a great degree when the low speed is used continuously. When a hill cannot be negotiated on high speed, the clutch should be released before the motor begins to pound, and the low speed engaged, and the driver should slow down his motor at once to that point where it develops just enough power to carry the load along. Under no consideration should the motor be run at high speed when the low gear is engaged. Rushing a hill in this way will take more out of a car in a half mile run than two hundred miles of touring on the high gear would. There is absolutely nothing to be gained by trying to go fast on the low speed.

When touring in a rolling country, I have found it advisable to favor the motor as much as possible. That is, after having climbed a steep grade and while descending the other side, pull the switch plug out and let the car coast for a minute or so with the high speed clutch in. This should not be done on cars where the compression relief is so located that it may be readily reached as many mufflers have been wrecked by just this practice. The engine, while being turned over by the car as it coasts, is of course drawing in charges of gasoline during every cycle, and this is being exhausted unexploded into the muffler. When the spark is thrown on again and the motor resumes its explosions, the first exhaust ignites the unburned gas in the muffler and causes an explosion. This may be of greater or less force, but I have seen mufflers literally torn to pieces as the result of the explosion of this unspent gas.

Running with Motor Dead.

Cooling the motor by this method is, of course practical only when descending hills of some length, and the driver should, before reaching the bottom of the grade, open his compression relief lever for a few seconds, allowing the motor to draw in a quantity of air and then throw his clutch out. When the car has reached the bottom of the grade, the engine will have been "dead" for a short time, and the unexploded gas will have escaped from the muffler. Advancing his spark and gas lever and putting on his switch, the driver can throw in his high-speed clutch and the engine will resume its operations considerably cooled.

Summarizing the correct handling of the motor, it may be said briefly:

Never allow the motor to race.

Keep the high-speed clutch tight.

Never try to make speed on the low gear.

Climb hills slowly and make your speed going down or when on the level.

Run the engine at a constant speed. That is, try and keep the car going at the same average pace; don't go twenty miles an hour for a few blocks, then eight or ten miles an hour, then twelve and then eight again. A varying motor speed tends to cause heating.

Don't use the low speed unless you have to; then don't fail to use it.

Never let the motor pound.

Keep the oil running steadily and cut it down when the engine smokes badly. Increase the supply if you are going through a hilly country where it is necessary to use the low speed much.

Always slow down your motor when the car is standing still for any reason and the engine is allowed to run. An air-cooled motor will at times heat up more in five minutes' running free than in hours of hard, steady work.

If for any reason you are standing still for any great length of time, stop your motor.

If your engine is equipped with two or more cylinders, run on them all. An air-cooled motor, or a water-cooled one for that matter, will quickly become overheated as a result of a skipping spark. Every explosion every time is necessary for highest efficiency.

Don't be satisfied just because the engine runs. Have it running right.

Valve Operation and Good Compression.

The valves play an essential and important part in all hydro carbon engines of course, but in the air-cooled motor they require particular attention. Although air-cooled motors are never run under high compression, and are frequently of slow speed, good compression is one of the most essential features of their successful operation. Valves not properly seated, burned or stuck piston rings or valves poorly timed, will result in an overheated motor at short notice.

In air-cooled cars the compression is likely to disappear over night and at times in a most mysterious manner. I have seen a four-cylinder machine without a single ounce of compression, the result of the use of poor oil. The piston rings had become gummed and the valves stuck, so that the inlets which were automatically operated would not move. It was necessary to take out the inlet valves and wash them in kerosene, and then pour the same fluid into each of the cylinders, cranking the engine by hand to work it in. By this method the compression was finally restored.

Testing the Compression.

The compression may be tested by turning the engine over by hand without opening the relief cock. In the case of a multiple cylinder motor, the compression will at times vary in the cylinders and a loss of power and a jerky movement of the car will result. Each cylinder should show about the same compression. To determine which cylinder is under compression, it is only necessary to press down the various inlet valves until the one is reached that offers resistance to the finger, and it is this cylinder that is on the compression stroke. It will be found as a general thing that inlet valves will not give much trouble on the double opposed type of engine, though in some of the light four-cylinder cars they have been a source of trouble, breaking at irregular intervals and causing delays en route. It is best on cars of the four-cylinder type to carry inlet valves already fitted in their cagings, so that the entire valve and caging may be removed and a new one put in its place. This saves time.

Under no circumstances should an attempt be made to hasten the cooling of an air-cooled motor by pouring water on it. This is, in fact, fatal to the machinery, and many a good engine has been warped and ruined by just this practice.

Wear of the Cylinder.

Besides the loss of compression, the wear on a cylinder generally makes itself known by a peculiar "slapping" sound heard inside the cylinder when the engine is working hard on a grade.

In double-cylinder opposed motors, the fitting of a new exhaust valve requires care. The wearing of the various pins connecting the valve with the rocker arm and the shortening of the valve itself by continual pounding may necessitate a different adjustment when the new valve is put in. The opening and closing of the valves should be tested and changes made as the occasion requires.

Another cause of loss of compression which is at times a puzzler, is wear on the cams which open them. Overheating of the motor may be caused by the fact that the cams have become worn down and the exhaust valves as a consequence open late. This will retain part of the exploded and useless gas in the explosion chamber and engine head instead of allowing it to escape, and when the new charge is drawn in, it mixes with the old, and is diluted so that it loses a great deal of its explosive force. Loss of power and overheating is the result.

It is seldom necessary to buy new cams. A good repair is to take the cam off, and, tapping a hole in it, fit a piece of steel of sufficient size to make the cam large enough to open the valve at the proper time. This is then faced up and case hardened, and the cam may then be replaced and will perform its function the same as it did when new.

It is of the greatest importance to know that the valves are operating properly, as the whole life of the engine depends upon this. The rules for setting and adjusting

valves and cams differ with various cars, but the basic principles are the same, and the user should familiarize himself with them.

Leaky Exhaust Valves.

Another of the many causes that may result in loss of compression in a motor is the settlement of any dirt or foreign matter in the seat of either the inlet or exhaust valves, although the latter are the more prone to this trouble. Bits of carbonized oil very often fall on the seat of the exhaust valve and are pounded into the metal, causing the valve and valve seat to "pit." They, of course, do not fit closely after this, and the compression is forced out between them as a consequence. In a case of this sort it is necessary to remove the valves and grind them in. In this operation the valve and valve seat may either be much improved or irreparably ruined, and that most easily.

In grinding valves, very finely powdered emery mixed with ordinary lubricating oil should be used. The valve caging should be put in a vice and the seat well cleaned. The seat on the valve should also be cleaned, but a file should never be used. The emery and oil mixture should be put on the seats of both and then they should be ground together. That is done by taking a screw driver and turning the valve right and left for a few times and then turning it around half a turn, always keeping an even pressure on the screw driver in order that the valve may be ground into its seat evenly. Care should be taken to see that the valve is not ground down more on one side than the other, as this will make its condition worse instead of improving it. When the valve seat and the seat in the valve caging have been ground together and are perfectly smooth they may be replaced in the usual way.

Cleaning with Kerosene.

At times it is possible to overcome a loss of compression without removing the valves. I have often been able to do so by removing the spark plugs and pouring about a gill of kerosene in each cylinder. Kerosene may also be squirted on the inlet valves, and when this is done the motor should be turned over slowly by hand in order to let the kerosene work down to the valve seats. When all the oil has been worked out of the engine, a teaspoonful of lard oil should be put through each spark plug hole and the plugs then replaced. The engine may then be started and should be run for ten minutes or so very slowly. A great smoke will result as the kerosene is burned up, but nine times out of ten the compression will be greatly improved.

The Significance of Noises.

In air-cooled motors, and in fact in every type of gasoline engine, there is nothing so important as the ability to analyze noises. When the engine is in good running order, it runs along with a sort of steady hum that is musical to the ear of the driver. The whirr of the chain can be distinguished from the click of the inlet valves and the louder knock of the exhausts, and there is no variation in the sounds as long as everything is going along all right, but the moment that some part refuses to perform its function properly, or is not receiving its required oil, spark or gasoline, the engine begins to "talk" and its various protests and noises convey to the trained ear in many cases the exact cause and location of the trouble.

A cylinder that is becoming overheated either from a stoppage of the oil supply or any other cause makes its trouble known by a scraping, grating noise at each stroke of the piston as the dry metals rub against each other. The sound is something like "girr-r-r, girr-r-r, girr-r-r," and steadily increases in intensity. A loss of power can also be noted, and the driver should get out at once and ascertain what the trouble is. To keep on forcing the engine to run may mean a badly cut cylinder and one warped from heat, as well as a stuck piston and the many difficulties resulting therefrom.

When this difficulty is met with, the first thing to be done is to turn the engine over slowly by hand after the cylinder has been allowed to cool and force some oil into it by means of a squirt gun or oil can, then give attention to the oiling system and ascertain positively whether or not the feed is stuffed up, and, if it is, remove the cause. It is possible, in case the automatic oiler gives out entirely, to get home by filling an oil can with cylinder oil and, disconnecting the feed pipes of the automatic, squirt the oil into the cylinders at short intervals.

Locating a Pounding Noise.

In the event of a pounding noise of any sort developing, investigate it at once. Pounds may be due to many causes, among which are wear in the main bearings or in the connecting rod bearings, wear on the wrist pins of the various pistons, loose bolts on a time shaft, or a loose flywheel. This last cause is, perhaps, the most difficult to locate, and in the event of a pound in the motor developing that cannot be found, in many cases a tightening of the flywheel set screws will remedy the trouble.

A broken exhaust or inlet valve will make its presence known at once by a heavy pounding noise and a great loss of power. Whenever this is noticed, it is advisable to throw off the spark and stop the motor as quickly as possible as the head of the valve, which invariably falls into the cylinder, may mix things up with the piston and do great damage. Before a new valve is put in, great care should be taken to get the head of the old one out.

The Handling of the Gears.

Apart from the fact that the transmission and gears may give trouble of themselves, they play a most important part in the matter of keeping the air-cooled engine cool; that is, in reference to the manner of handling them in connection with the engine, to secure the best results with the least machinery wear and engine overheating.

Cars having a bevel-gear drive are racked more in starting and changing gears than in any other way, and great care should be exercised at these times in order to prolong the life of the gears, and, in fact, the whole machine. Cars fitted with this type of transmission generally have three or four speeds forward and one reverse, and start very readily on level ground on the second speed. The gear lever should always be locked firmly in place before the clutch pedal is released, and the driver should aim to have his engine speeded up sufficiently so that the clutch may be allowed to slip in easily and slowly, and the car start with a steady pull forward instead of a quick jerk as the clutch takes hold.

The grinding and crashing of gears often heard in changing speed is due to the fact that gears are allowed to clash together and grind while going from one gear to the other.

Declutch when Changing Gears.

The clutch should always be entirely disengaged when gears are changed, and the movement of shifting should be quick and not jerky or hesitating. The car should always be running at about the normal speed of the gear engaged when the clutch is allowed to take hold.

Nothing is more destructive on tires than allowing a gear to be drawn into operation quickly by the clutch, which strains the motor and spins the driving wheels around.

The same general rules also apply to cars fitted with the sun and planet type of gears, which is generally a three speed system consisting of a high and low speed forward and a reverse.

No matter what the gear system may be, the driver should use the greatest care in negotiating difficult roads. Gears are often stripped or chains broken in pulling out of a muddy place or a deep hole. Many drivers speed the motor up to its full capacity and then throw in the low speed gear. The result is usually a great strain on the car and stalling of the motor. If this is continued several times, a badly overheated engine will be the result. Little good can be done by engaging the clutch or throwing in the low speed gears on any car when the motor is racing, and the strain on the transmission, engine bearings, gear box and crank case is enormous. Nine times out of ten the wheels spin around but the car sticks. A steady pull will accomplish a much more satisfactory result without the danger of putting the car out of commission.

Forcing Cars on Hills.

In this connection the same rule applies to the forcing of cars on hills. The drivers of many cars overheat their motors by trying to resume the high speed after having fallen back on the low gears while climbing a grade. For instance, I have seen

drivers rush a hill on the high speed and then, as the motor began to pound, fall back into their low gears, and in a second or so speed the engine up to its limit, and then engage the high speed clutch again. The car generally spurts forward a few feet and then begins to labor, and, in order to avoid stalling the motor, the driver must go into low speed again. One man in particular that I know of met mishap with a four-cylinder air-cooled machine by repeating this practice a number of times while going up a long hill. His engine became so overheated that the pistons stuck and the car was stalled for a considerable time and the cylinders were considerably damaged. It is generally advisable to continue up a hill on the low speed after having been obliged to use it, unless the grade changes so materially that the car can be depended upon to "pick up" on the high gear and continue without pounding or laboring.

On Handling Brakes.

The care and handling of brakes is a feature worthy of attention in the driving of any car. Clutches should invariably be kept free from oil as far as possible. In the sun and planet type of transmission the gear bands invariably gather a great deal of oil, and a good scheme for cleaning them is to squirt gasoline under the bands and allow it to work around. This may be done without removing the bands, and it will take the greater part of the dirt and grease out of the leather. Follow this with a thin coating of lard oil to make the leather pliable, and if the bands still slip, a little sulphur or powdered rosin will generally absorb the oil and bring them around all right. The same thing applies to cars with leather-faced clutches, but if rosin is used care should be taken for the first half hour or so in engaging the gears, as the rosin will cause the bands or clutch to take hold suddenly and jerk the machine into motion at times rather violently.

There are no end of suggestions that might be made as to the care of the various parts of the cars, but to each owner of an automobile the situation presents different phases, and each must use his own good judgment. Generally speaking, it is well to remove driving chains about once in every 1,000 miles of touring and boil them in a pail of water containing four pounds of sal soda. This will remove the dirt and grit and the chain may then be rinsed in clean hot water and hung up to dry, after which each link should be oiled and graphited and the chain replaced.

Remember that your car is not indestructible; give the engine a fair chance, and use ordinary "horse sense" in getting over the road, and your touring experiences will be unmarred to a great extent by break downs or delays on the road. There is no doubting the fact that the success of the touring car of to-day depends almostly entirely on the knowledge and skill of the operator, be he chauffeur or owner.

Concluded.

Bollee Automatic Carbureter.

Experience has shown that a spray carbureter cannot be made to give a perfect mixture of gasoline vapor and air unless there is a suitable ratio between the areas of the openings for air and gasoline, and that these ratios must vary with the volume and velocity of the flow. Believing that the correct ratios could best be maintained by varying the capacity of the mixing chamber and of the various passages, M. Bollee,

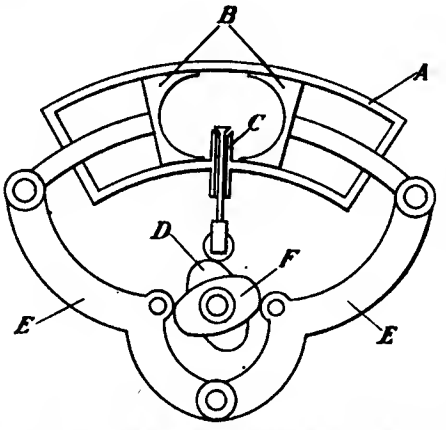


FIG. 1.—BOLLEE MECHANISM FOR VARYING AREA OF AIR PASSAGE AROUND FUEL NOZZLE.

manufacturer of the cars that bear his name, has designed a carbureter in which mechanical means are provided for automatically making these adjustments so that a correctly proportioned mixture is always sent to the engine, regardless of variations of piston speed.

M. Bollee's fundamental idea is to vary the size of the chamber surrounding the spraying nozzle, and at the same time to proportionately vary the area of the opening in the spray nozzle. A number of devices for accomplishing the desired result were tried, and two are here illustrated.

In Fig. 1, *A* is a hollow casting of rect angular cross section, in which two sliding pieces, *B*, are fitted closely. The space between the concave faces of these pistons, as they may be called, constitutes the mixing chamber, into which rises the spray nozzle *C*, the opening of which is regulated by means of a small valve whose stem extends downward, terminating in a roller to take the thrust of the cam *D*. Cam *F* acts upon the arms *E E*, which are hinged together at their lower ends and connected at their upper ends with the pistons *B*. The two cams are immovably secured to the same shaft; the shaft is provided with means by which it may be partially rotated automatically by a governor or manually. It will be seen that rotation of the shaft from left to right will cause the cams to separate the arms *E E*, and, consequently, the pistons *B*, thus increasing the size of the mixing chamber. Simultaneously the valve in the spraying nozzle is caused to open by its cam; the valve must always have the same area of opening when the mixing chamber is of a given area, and the proportions are fixed by the lift of the cams. Suitable springs are, of course, provided, tending to keep the valve closed and the pistons close together.

This device was made in a slightly different form, though on the same principle, by making the casing *A* straight instead of in the form of an arc struck from the center of the pivot of the arms *E E*. This arrangement, however, necessitated a somewhat complicated system of linkage, and for this reason the form illustrated was considered the best.

Another apparatus for accomplishing the same results, and based on the same principles, is shown in Fig. 2. This arrangement is considered a better one in every way than the first. Two drums, *A A*, are mounted on short shafts in cylindrical chambers in which they fit closely. A groove, *B B*, of approximately semi-circular section, is formed in the periphery of each drum; the groove is shallow where it commences, but increases its area as it passes around the drum. The shaft of each drum is extended upward, and each is fitted with a spur gear, *C C*, the gears meshing so that the motion of one of them must move both drums. The spraying nozzle is placed with its opening at the center of the chamber formed by the grooves in the drums. The stem of the valve which regulates the area of the nozzle opening screws into the casing with a quick thread, and, like the drum shafts, is fitted with a gear *D* meshing with a similar gear *E* on one of the drum shafts. The rotation of the gear causes the valve stem to be raised or lowered, according to the direction of rotation, by the thread. As all the gears are fixed on their respective shafts, it will readily be seen that when any one of them is rotated the others must also rotate. Thus, as the drums rotate, wider sections of the grooves are brought opposite the spray nozzle opening, and the mixing

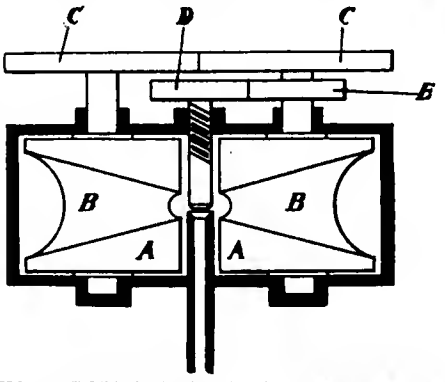


FIG. 2.—ROTATING SPOOLS TO VARY AREA AS NOZZLE VALVE IS REGULATED.

chamber is made larger. At the same time the screw raises the valve and gives a wider opening for the flow of gasoline, the relations of the openings being fixed by the mechanical connections.

Though these devices may be operated manually by the driver, they were designed to be operated automatically by a governor.

Concerning the Recent Transcontinental Race from New York to Portland, Oregon.

By JAMES W. ABBOTT, Formerly Special Agent U. S. Office of Public Roads.

(*Continued from page 152, issue of August 10.*)

IN selecting a route west of Omaha there was at first a temptation to sacrifice directness for the sake of including certain important cities. This idea was very wisely relinquished. It was decided to take the direct route, and in so far as possible to keep close to the Union Pacific railroad system. As the automobile habit in the far West is soon to have a phenomenal expansion, and as by reason of topography this railroad system, sometimes known as the Harriman System, is the one with which the transcontinental automobilists will come most in touch, it is pertinent that something should be said about the attitude of that system towards the automobile and their inter-relation.

The constituent members of that system are known and operated under four separate names, according to the field covered. From New Orleans to San Francisco, via El Paso and Los Angeles, it is called the Southern Pacific. On the central route, from Omaha to San Francisco, it is known as the Union Pacific as far as Ogden, and the Southern Pacific the balance of the way. On the Portland-Omaha route one line of track starts from Granger, Wyoming, and one from Ogden, Utah, and run northwesterly, converging near Pocatello, Idaho. This is known as the Oregon Short Line. It again diverges at Pocatello, one arm running to Butte, Montana, and the other in the direction of Portland. This latter arm of the Oregon Short Line extends to Huntington, Oregon, on the Oregon border, where it meets the line of the Oregon Railroad and Navigation Company, and over this the system enters Portland from the Southeast. The system also has a line from San Francisco to Portland which is known as the Southern Pacific. The general passenger and operating departments of that part of the system which most interests the transcontinental automobilist are at Omaha, Salt Lake City, Portland and San Francisco. It is indeed a curious and interesting historical fact that the first overland mail, stage and express route to San Francisco passed through El Paso, Texas. It is safe to predict that ere long some adventurous automobilist will retrace that old route and add his accomplishment to the swelling list of new records.

The assistance and information furnished us by General Superintendents W. L. Park, of Omaha, and E. E. Buckingham, of Salt Lake, and General Passenger Agents E. L. Lomax, of Omaha, D. E. Burley, of Salt Lake, and A. L. Craig, of Portland, Oregon, were important if not absolutely controlling factors in the success of the recent contest between *Old Scout* and *Old Steady*. We were always furnished cordially and punctually by letter or wire, as we wished, any available information about matters concerning us on any part of the system. Supplies, conditions of roads and bridges, whereabouts of each car, our personal letters and telegrams, were all matters of solicitous interest to every class of employees on the system. It is impossible for one to feel much isolated, or very far removed from home or the world's activities, when every man he meets extends a cordial greeting and manifests a desire to be of service.

The road which we intended to take west from Omaha to Granger followed the railroad very closely, always keeping it in sight. The boys pulled out of Omaha on a beautiful, balmy afternoon, with high hopes and cheering prospects. With roads as they expected to find them, Cheyenne, 500 miles away, should easily have been reached in three days. There were neither heavy grades nor deep sand to impede progress. In settled weather, with roads dry, good time is just as attainable between Omaha and Cheyenne as between New York and Buffalo.

Such good luck was not to be. By noon the next day they not only found themselves in pouring rain, but they discovered that they were entering a rain belt where the elements had been acting with great freedom for a couple of weeks. It is said to have been the custom on the roads of England during the middle ages for the hapless traveler to seek the highest ground as he journeyed across the country, trying to avoid being engulfed altogether. And so it was with the boys. They see-sawed from ridge to ridge, and back and forth across the Platte River. It was no use. The harder they tried and the more recklessly they defied the mud and rain, the worse things got. Instead of reaching Cheyenne on May 28, as they had expected to do, it was late at night on May 31 when *Old Scout* reached there, and *Old Steady* was still a day behind that.

A few miles west of North Platte the Sand Hill region of Nebraska is reached. That doesn't mean steep hills, but it means a sandy soil through which water drains more readily than it does through the black prairie soil of the corn belt farther east. North Platte is on the dividing line between the farming country which thrives without irrigation and that where it is a *sine qua non*. At Julesburg, eighty miles further west the soil is naturally so arid that it would take five hundred acres to winter a goat in normal years. When we reached there Julesburg was a bog hole, and the mud in the roads axle deep for wagons. Men who had lived in that country for thirty years, who appeared to have the fear of God in their hearts, and to be not prone to lies, asserted that never before had such rains been known in that section. The innate selfishness of the human heart could never be more typically illustrated. They all persisted in viewing this unprecedented downpour from the standpoint of its effect upon the ranch and the range, and without commiseration for Huss and Megargel.

Transcontinental Tourist at One of the Many Buttes in Wyoming.

At North Platte the aboriginal civil engineers of Hosea had exhibited that fallibility in location which has not lacked analogy in the practice of the human species. The trail which they outlined continued to follow the Platte River in its general course for 400 miles to its junction with the Sweetwater, and then it followed the Sweetwater 125 miles further up the gradual and at last imperceptible slope of the South Pass; and when the very indefinite line had been passed where the waters divide, one-half flowing down towards the Atlantic and the other half toward the Pacific, this trail of the buffalo and the savage had led the fur trader down a fork of the Green River for a distance before it again turned to the northwest.

There are no more thrilling pages in American history than those which tell of the trails to the far West. The early movements westward were naturally by water. Men could move themselves and their belongings that way more easily and with more security against the treacherous savage. When Captains Meriwether Lewis and William Clark in 1804 sailed up the Missouri on that perilous mission from President Jefferson they found that French

traders had preceded them for many hundred miles. They sailed on up the Missouri, along the eastern border of what is now the State of Nebraska, through what are now South and North Dakota, and on through the Montana of to-day well toward its northwestern corner. Then leaving the river after it ceased to be longer navigable, they crossed the Indian's "Shining Mountains," and after almost incredible perils reached the headwaters of a northeastern fork of the Columbia. Finding this impracticable for their purpose, they abandoned it, and, crossing the Bitter Root Mountains, passed over to the head of the Clearwater, which they followed down to the Snake, and that on down to its junction with the main Columbia, and still on down that majestic stream to its mouth, where they found at last the western ocean which they sought.

Year by year after the return of Lewis and Clarke the fur traders pushed farther and farther up the various heads of the Missouri. In 1808 Mr. Henry, the partner of that bold and crafty Spaniard, Manuel Lisa, of St. Louis, pushed over the mountains and built a crude log fort on one of the branches of the Snake. That main affluent of the Columbia had already become known as the Lewis River, and it is disgraceful perfidy to the memory of that great explorer that this river to-day is not universally called by his name.

About this time John Jacob Astor was indulging lofty aspirations. As a stripling youth without means he had left his humble home in the little German village of Waldorf on the Rhine and had finally come to seek name and fortune in this young republic of the New World. Embarking in the fur business, he had prospered, and was soon rich. He conceived the purpose of establishing the American flag at the mouth of the Columbia and confirming to the United States the rights acquired by discovery, but threatened by British aggression. He dispatched expeditions by land and sea. The one by land, in charge of his partner, Wilson P. Hunt, left St. Louis in October, 1810, and followed for a distance the usual route up that river. Near what is now the boundary between North and South Dakota he left the Missouri, and, striking off overland several hundred miles to the southwest, he crossed the mountains and made for Henry's fort on the Lewis. Continuing down the river and through the Blue Mountains, he struck the main Columbia at the mouth of the Umatilla, and where the Columbia reached the ocean he came to the ill-starred settlement of Astoria, founded the previous year by the expedition sent by sea. Hunt had traveled by the circuitous route he had followed more than 3,500 miles from St. Louis, and consumed fifteen months of time.

The information about topography gained from all sources on this trip proved that any route to the Pacific which ascended the Missouri for a long distance and then crossed the mountains was not only too circuitous, but involved much needless peril and labor.

In June, 1812, Robert Stuart with a small party of mountaineers started from Astoria overland to bear to their chief reports of his enterprise. Profiting by the experience and information secured by Hunt, Stuart on this trip approximately outlined what in after years became the Oregon trail.

Complications greatly aggravated by the War of 1812 finally wiped the little colony at Astoria and its American flag off the map, to the overwhelming disappointment and serious less of its eminent and patriotic founder. But not so with the Oregon trail. For many long years after this trip of Stuart this trail played its part in most of the important events which went to make up far Western history. The fur traders used it in going back and forth from both the East and West to new posts as they were established. In 1823 General W. H. Ashley, senior partner of the Rocky Mountain Fur Company, followed it up the Platte and Sweetwater and explored the headwaters of Green River. He was the first to write of the South Pass. The following year he pursued it still farther, and then, diverging to the southwest, discovered that strange remnant of a prehistoric ocean which, after bearing several names, came to be known to the world as the Great Salt Lake.

In 1832 Nathaniel J. Wyeth, of Boston, emulating the example of the founder of Astoria, followed it clear to the Columbia, and two years later, on a second trip, built a fort near the present site of Pocatello, which stood for very many years and was known as Fort Hall. With him on that trip went the first missionaries, carrying the gospel and once more the American flag, this time to stay forever in Oregon. In 1835 went other missionaries.

The next year Rev. Dr. Whitman and his newly married wife, with Rev. H. H. Spaulding and his wife, and W. H. Gray, followed the beckoning cross along this trail. In their outfit, which was under the escort of the American Fur Company, were three wagons, eight mules, twelve horses and sixteen cows, besides tools, seeds and other vital needs of a primitive settlement. At Fort Laramie, 522 miles from Council Bluffs, two wagons were abandoned, because the trappers insisted that the trail was impassable for wagons; but in spite of their increasing protests one of the wagons was pulled in triumph to Fort Hall. Dr. Whitman said the ladies must have it to ride in. At this point he compromised with their insistent objections by cutting it in two, and thus in the shape of a cart it went nearly three hundred miles further, where, yielding with great reluctance to their importunities, he abandoned it altogether.

Yearly the little American colony in Oregon was supplemented by additions received over this trail. In 1840 three wagons were brought through, the first to make the complete trip, and these "horse canoes" were regarded with appropriate wonder by the astonished Indians, who recognized in them fresh evidence of the versatile resources of the "Bostons," a term which they had learned to apply to all American invaders.

In 1842 Lieutenant John C. Fremont, on

DWIGHT B. HUSS DELIVERING MESSAGE OF MELVILLE E. STONE TO PRESIDENT H. W. GOODE [OF THE LEWIS AND [CLARK] EXPOSITION, ON JUNE 21.

his first exploring trip, went up the Platte and Sweetwater, "discovering" as he went all the important physical features of the trail so well known to the early Oregon pioneers, and the following year, on his second expedition, he "discovered" clear through to Vancouver, on the Columbia.

The Hon. Thomas H. Benton, so long a stalwart bulwark of Democracy in the United States Senate, whose beautiful daughter Jessie had married the young explorer against her father's vehement opposition, soon became very proud of his gifted son-in-law, and never missed an opportunity to exploit his achievements. One day with glowing oratory he was eulogizing the "discoveries of the Pathfinder," when some irreverent soul in the audience shouted: "Yes, discovered paths made by women and children."

In 1843 the Oregon colony was swelled by many additions, one single train coming in with a lot of prairie schooners and over two hundred people over this now quite thoroughly "discovered" trail; and from that time the westward flowing tire of emigration went mainly to the Columbia River until California, through the fortunes of war, had become American soil.

At first the California trail turned off at Soda Springs, about seventy miles before Fort Hall was reached, but after the Mormons came, in 1847, many took the trail which they had made, and which turned off from the Oregon trail at a considerable distance before Fort Hall was reached.

(To be concluded.)

ACCIDENTS WITH FATAL RESULTS.

In an accident that practically wrecked his 40-horsepower Mercedes last Saturday afternoon Vinson Walsh, son of Thomas F. Walsh, of Washington, D. C., was killed; his sister, Miss Evelyn Walsh, was seriously hurt, and Mrs. James L. Kernochan, Herbert Pell and Harry Oelrichs, who were accompanying them, were also injured. The accident occurred a short distance from Easton Beach, near Newport, R. I. Young Walsh, who was driving the car, for some reason lost control of the machine, and it crashed through the fence, throwing the occupants to the ground. He had on several former occasions been warned as to his fast driving, and at the time of the accident he is said to have been traveling at about forty miles an hour.

Another fatal accident is that which occurred on Monday afternoon, August 14, when Harris M. Lindsley, Third Deputy Police Commissioner of New York City, accompanied by his fiancée, Miss Evelyn Willing, of Chicago, and chauffeur, were returning to Bennington, Vt., from a day's trip to Williamstown, Mass. Between Bennington and North Bennington the machine collided with a train on the Rutland Railroad, killing almost instantly both Mr. Harris and Miss Willing, while Jesse Adamson, the chauffeur, was probably fatally injured. Both the car and the locomotive were running at high speed.

Upbuilding of a National Organization.

INFUSION of new blood into the executive branch of the American Automobile Association this year has resulted in a display of energetic action under the Lee administration that augurs well for the growth and future position of the organization as a representative national body. Although the gathering up of the reins of office by new officers from time to time has occasioned considerable delay, the policy outlined by the board of directors at the special meeting held February 17 last has been kept constantly in mind and the work along the lines laid down has been prosecuted as fast as possible with the means at hand. The policy as outlined at that time was as follows:

1st—To unite in one national body the automobile clubs of the United States, and through them the individual automobilists.

2d—To promote and further all matters of a national character in which automobilists are interested, and particularly these: (a) legislation, (b) good roads, (c) control of racing.

3d—To provide for its members actual benefits, and particularly these: (a) reciprocal club privileges, (b) bureau of information concerning laws, touring routes, road maps, racing statistics and similar subjects, (c) a medium for the exchange of ideas and information of value to clubs in furthering their promotion and usefulness and value to individual automobilists.

The foregoing covers a field of operation broad enough to engage the energies of the association officers for years to come, and while it is impossible to put the entire policy into thorough effect at once, initial work is being done along the most urgent and important lines. To this end efforts are just now being made to form additional state organizations of automobile clubs which shall be affiliated with the A. A. A., a bureau for the furnishing of information regarding touring routes has been established, a very active part in the control of track and road racing has been taken, and the influence of the organization is being given to aid the good roads movement and to secure uniformity of state automobile laws.

There are already three state associations of clubs affiliated with the national body—the New York State Automobile Association, the Massachusetts State Automobile Association and the Illinois State Automobile Association. Efforts to form a New Jersey association are now crystallizing, and a meeting of delegates from the leading clubs of that state with the officers of the national body was called for Wednesday, August 23, at Long Branch, during the automobile carnival there, for the purpose of formal organization. The representative clubs of the state had agreed to send delegates, and the indications are for a very successful outcome.

It is expected that Pennsylvania will be the next state to unify its clubs and join the three A's, as the Philadelphia and Pittsburg clubs and a number of others in smaller cities have responded favorably to the suggestion and agreed to send delegates to a meeting for the purpose at any place and time for which a call is issued. It has been proposed that such meeting be held in some summer resort place, such as the Delaware Water Gap, and that the delegates tour to the rendezvous from their respective cities. It is thought now that such meeting may be held in September or early October, before the bad fall weather sets in.

The Davenport Automobile Club was recently taken into the national body, and it is hoped soon to form an Iowa division through the leadership of the Davenport club. President Wilson, of the Louisville Automobile Club, who was in New York recently, has returned home enthusiastic over plans for having the Lexington, Paducah and other clubs unite with the Louisville club in the formation of a Kentucky association.

Similarly, efforts are being made through the Colorado A. C., the St. Paul A. C., the A. C. of California and the Milwaukee A. C., to bring the foremost clubs of Colorado, Minnesota, California and Wisconsin together in state bodies. In promoting this work, the A. A. A. sends out to the club that is taking the leadership in each state a draft of a constitution which can be used as a basis for constitution and by-laws by each body, with such changes as are necessary or deemed advisable. This draft is based upon the constitution of the New York State A. A., though certain changes have been made to render more clear the relation of the state body with the national head and to make the draft applicable to any state organization.

Efforts are being made simultaneously to secure the membership of individual automobilists not affiliated with local clubs. Benefits to be derived from membership are explained and it is pointed out that as the membership grows the influence of the association increases so that more important and direct results can be derived from representations made in connection with good roads and legislative matters. Club members are admitted to the A. A. A. for a membership fee of $1 a year, and individuals for $2. One-half of each amount goes into the treasury of the national body and the other half into that of the state association in the state in which the member lives. Thus the member derives direct local benefit as well as the advantages conferred through the national body, such as reciprocal privileges at the quarters of other affiliated clubs, reduced rates on road maps, information concerning any particular touring route desired, national legis-

lation for highway improvement, and, if it can be brought about, uniform state automobile laws.

A touring information bureau has already been established through which members can secure, in a few days' time, descriptions of any desired route for which there is available information. From two to half a dozen inquiries are already being received daily and answered by this bureau, and the work will be extended as rapidly as possible, as it is realized that this is one of the ways in which membership in the A. A. A. can be made of greatest value to the individual. In addition to this, arrangements have been made with the Survey Map Company, of New York, whereby a series of 170 maps in eighteen different sections of eight to ten maps each is being published covering a part of Maine, most of New Hampshire, all of Massachusetts, Connecticut, Rhode Island and New York State, and the portions of Pennsylvania, Ohio, Michigan, Indiana and Illinois through which the popular "lake shore" touring route to Chicago and the West passes. These maps are compiled largely from information secured through members of the A. A. A. who have actually toured over the roads. The auto routes are printed in red. On the backs of the cards on which the map sections are printed are careful descriptions of long through routes, with distances between towns and the progressive mileage. The maps are on a scale of four miles to the inch.

Such hotels on main touring routes as are willing to give assurances that tourists will be given the best accommodations without overcharges are being appointed official A. A. A. stopping places. No effort is being made to secure reduced rates for accommodations, as it is felt that the automobilist wants first-class accommodations and is willing to pay the same rate as other travelers for them.

In the matter of good roads work, the A. A. A. expects to co-operate with the National Association of Automobile Manufacturers and the Automobile Club of America in the dissemination of highway improvement information through the public press, particularly in the country newspapers, and in urging the passage by Congress of the Brownlow bill for the establishment of a national highway bureau and a national appropriation of $24,000,000 to be apportioned among the states and territories to aid and encourage the making of hard roads during the next three years.

A. R. Shattuck, chairman of the highways committee of the A. A. A., is soon to return from Europe, where he has been touring, and next fall and winter will prosecute the work of his committee with his characteristic energy. Secretary Batchelder, who is conducting a voluminous correspondence in connection with all branches of the A. A. A. work, feels that the country is fast approaching a period of general awakening to the necessity for road improvement and that the chances for the passage of the national aid law are increasing daily. Regarding the attitude of residents of the rural districts toward the interest in good roads taken by automobilists, he says that the activity of the automobilists in the matter does not seem to cause resentment among the farmers. The principal objection to road improvement held by the farmers in states where state aid laws are not in operation, is that the burden of cost falls upon the rural sections while the city dwellers derive a large share of the benefit, especially tourists. By working for state and national aid in road building, the automobilist can ingratiate himself into the good opinion of the farmer, since under such laws the cities will have to pay a fair proportion of the cost of the work. As an evidence of the good will of the good roads workers toward automobilists, Mr. Batchelder exhibited last week an invitation from H. S. Earle, Michigan state highway commissioner and former state senator, to attend and address a good roads meeting soon to be held in Port Huron, Mich., at which it is planned to have an automobile assemblage and to give the delegates from the farming districts throughout the state a ride in automobiles with the object of bringing the farmers and automobilists into friendlier relations.

Efforts are to be made this fall by the law committee under the chairmanship of James B. Dill, to have the New Jersey automobile law amended so that the licenses issued by other states will be recognized in New Jersey. The majority of the state laws have clauses providing for such reciprocity, but, strangely enough, the new law of New Jersey, which is considered very liberal in most respects, does not, and motorists living just over the Hudson river in New York City may not cross into Jersey City or venture elsewhere in the little state where the many miles of fine roads are so tempting without first providing themselves with New Jersey licenses. It is hoped that in time all of the state laws can be so modified that the owner of a car can go anywhere in the United States with one license and one tag.

Attention of the racing committee is just now directed particularly toward the William K. Vanderbilt cup race, and Robert Lee Morrell, chairman of the committee, is taking a great deal of personal interest in the contest. He hopes to show a neat profit on the race and to demonstrate that the control of racing redounds not only to the credit of the Association, but also can be made to yield some revenue in return for the time and work expended.

Under the presidency of Elliot C. Lee there is a general unanimity of purpose and effort among the officers and the work of the different departments is going forward steadily and with promise of more rapid progress in the future.

Garage in Honolulu.

Anyone who labors under the impression that there is "nothing doing," so far as automobiles are concerned, in Honolulu, in the Hawaiian Islands, is greatly mistaken; and proof is forthcoming in the accompanying engraving. This shows part of the interior of a garage recently opened in Honolulu by the Von Hamm-Young Co., agents for the White steam cars at that place. The garage has a floor space of 5,000 square feet and can easily accommodate thirty cars; it is entirely fireproof. Dressing rooms, with plenty of lockers, are provided for men and women. In the rear of the garage is a completely equipped machine and repair shop. The building adjoins the Alexander Young hotel.

GARAGE BUILT OF ANGLE IRON, CORRUGATED IRON AND CONCRETE, RECENTLY OPENED IN HONOLULU, HAWAIIAN ISLANDS.

BUFFALO CLUB BANQUETS PIERCE

Special Correspondence.

BUFFALO, N. Y., Aug. 21.—An enthusiastic gathering of automobilists met in the rooms of the Automobile Club of Buffalo last Friday night to attend the banquet in honor of Percy Pierce, winner of the Glidden touring trophy. There were about fifty persons present.

The tables were arranged in the form of a "T," and Augustus F. Knoll, president of the club, presided. There were a number of speeches, all teeming with praise for Mr. Pierce and his successful tour, and also taking the stand that the true use of the automobile is for touring or pleasure purposes, rather than for racing.

Proposed Road Racing Circuit Around Lake Chautauqua in New York State.

Special Correspondence.

JAMESTOWN, N. Y., Aug. 18.—A movement has been started here to improve the existing roads around Lake Chautauqua and so obtain a 44-mile circuit for automobile racing. The suggestion started with the management of the Duquesne Construction Co. and has been taken up by a number of the progressive business men and farmers of this section who are enthusiastic about the possibilities.

Chautauqua county has been very backward in the matter of good roads, although this is one of the most attractive summer resorts in the State and famous throughout the world as the home of the original Chautauqua Assembly. The movement received a boost at the recent good roads convention held in Lakewood, near here, at which there was a very representative gathering of the landowners of this lake country. It was shown there that under the provisions of the Higbie-Armstrong law the State pays 50 per cent. of the cost of road building, the county 35 per cent. and this leaves only 15 per cent. to be paid by the townships or the abutting property owners.

Those interested in the proposed circuit see in it not merely an opportunity to hold an annual road race, but an attraction during the entire summer season to the drivers of touring machines and owners of horses who wish good roads for an enjoyable spin around one of the most beautiful lakes in the country. Such a circuit would attract hundreds of summer hotel visitors and cottagers, whose material wants are supplied largely by the farmers of the county. And as the lake is on the highway from New York to Chicago it would become one of the most popular stopping places on the journey, when that projected trunk route is completed.

Although everybody in America knows Lake Chautauqua by name probably many have only a hazy idea of its exact location. This is in the southwest corner of New York State near the Pennsylvania line. It is easily reached by rail; Mayville at the head of the lake—the county seat—is on a branch of the Pennsylvania system and Jamestown at the other end is on the main line of the Erie Railroad. A trolley line on one side of the lake connects these towns and passes through Lakewood, about five miles from Jamestown, and alongside the famous Chautauqua grounds, about three miles from Mayville.

The lake itself is shaped not unlike the figure 8, with a length of twenty-two miles and an extreme width of three miles. It it notable among lakes as being the highest navigable water in the country on which regular lines of steamers ply, with the exception of Lake Tahoe in California. The lake is elevated 1,450 feet up in the air, giving it a delightful summer climate. Lake Erie, from which it is only seven miles removed, is only 573 feet above sea level. The pretty valley in which Lake Chautauqua lies is surrounded by fertile hills with picturesque wooded slopes in which nestle many summer colonies and a few permanent settlements, including those already named and Hartfield, De Wittville and Bemus Point. The latter is at the narrowest part of the lake and is famous in piscatorial circles for the excellence of the muskallonge fishing and the delicious preparation of this fish for the table.

The existing roads are not very wide nor are they of good surface, yet the right of way is ample for the construction of a splendid wide country road, and, though suitable stone is not found in the locality, there is an abundance of gravel. There are numerous grades, but only such as would make an automobile race interesting and give zest to a touring car trip. Practically all the way around the lake is in sight from the road and for miles it is within gunshot of a passing car, giving lovely views of woodland and water in the clear and balmy summer air.

With the exception of Jamestown, an exceedingly busy and prosperous manufacturing city of 30,000 inhabitants, the existing roads do not pass through any large settlements. Mayville has about 1,500 permanent residents, but the road here is close to the lake, while the town is on top of the hill above and a race would not interfere with the usual occupations of the people. At Jamestown the city could be avoided by constructing a branch leading down to and across the outlet of the lake, at a narrow point and where a pontoon bridge could be used during the day of the race.

TOPOGRAPHIC MAP SHOWING RELATION OF LAKE CHAUTAUQUA TO VARIOUS CITIES.

Accessibility is one of the chief claims for this proposed circuit, as the lake lies in the direct line of travel between the east and the west and is within easy distance of Pittsburg, Cleveland and Buffalo, besides a score of smaller cities. If a race meet were held early in September the many summer hotels and cottages would be open and could comfortably entertain a large number of visitors, and in Jamestown there are good modern hotels with up-to-date conveniences.

E. R. Thomas, the automobile manufacturer of Buffalo, is one of the enthusiasts over the possibility of making this a circuit of international renown. He has offered to donate a $1,000 cup when the circuit is completed. Local sentiment is favorable to the automobile and should the road building program be carried out there would be no talk of injunctions and the considerate driver would always be assured of a most cordial and hospitable welcome.

LOOKING ACROSS THE PROPOSED CIRCUIT TOWARD THE WATERS OF LAKE CHAUTAUQUA.

King Edward has selected a chauffeur from the London police force.

Foreign

FRENCH RUNABOUT TRIALS.

Object Is to Stimulate Trade and Head off American Competition.

Special Correspondence.

PARIS, Aug. 11.—In order to encourage efforts in the construction and development of runabouts at popular prices, the Paris newspaper *L'Auto* has created a "Runabouts Cup." The journal points out that all the efforts of French builders have been towards the perfecting of powerful motors and luxurious bodies. Thus four-cylinder, 40-horsepower touring cars have become so numerous that they almost outnumber every other type of car. Efforts have only been made to satisfy the richest class of customers. All this is very unfortunate, says the paper, for the lawyer, the doctor and the business man who have so long been asking for a car suited to their needs—a vehicle of 6 or 8 horsepower, with seats for two; simple, solid and economical—will finally become tired of asking in vain, and will appeal to the foreigner. To quote from the article:

"The American industry has realized this for a long time. It is true that up to the present it has committed more errors than made happy finds. Uncertain of its own destinies, it gropes about, but we may be sure that as soon as it has found its true path it will go forward with rapid strides. Already at the present time certain big firms —Cadillac, for instance—place annually five thousand runabouts in the forty-five states. And Cadillac has begun to deliver in England. It has not yet dared to attack the French market, but that will come if we remain apathetic.

"Only yesterday I received from the National Association a question paper which is very eloquent with regard to the ambitions of Jonathan. Shall I give a few of the most typical sentences?

"'What American type is the most popular in France?'

"'What is the average price of French runabouts of 6 to 8 horsepower?'

"'What is thought generally of the quality of American runabouts compared with those of (a) France, (b) Germany, (c) England?'

"'What is the best plan to adopt in order to introduce and establish American runabouts in France? Is it the foundation of branch selling stores or the cession of a selling monopoly at fixed prices among established agents?'

"It is unnecessary to make any comment."

To ward off this "dangerous competitor" the "Runabouts Cup" is created, in order that the attention of builders and the public alike may be drawn to this popular type of car before America becomes established here.

The basis of the competition will be regularity, but speed on both hill and level ground, flexibility, and brake power will not be neglected. The cars entered must have a maximum cylinder capacity of one litre; a chassis weighing between 770 and 1,100 pounds; body work not exceeding 110 pounds, and must carry two passengers weighing each not less than 154 pounds.

The cup will be competed for over a course of 750 miles, to be taken on six days' stages of 125 miles each, the classification being based on (1) regularity, (2) speed in hill climbing, (3) speed on the level, (4) starting power on hills, (5) brake power. An average speed of 12.4 miles an hour will be required. Regularity will be tested by means of timing controls along the course unknown to competitors.

At the commencement of a day's run 200 points will be accorded to each competitor. The average speed per hour between two controls will be taken, and every variation of one kilometer, or fraction of a kilometer, between this and the average speed for the entire journey will entail the loss of one point.

FRENCH TIRE TEST SUGGESTED.

Special Correspondence.

PARIS, Aug. 11.—A novel competition has just been proposed by an ingenious Frenchman. In recent great road races—the French eliminating trials, the Gordon Bennett and the race on the Ardennes Circuit in particular—it has been found that it was as much a race of tires as of motors; in all cases there were more failures to finish from tire troubles than from mechanical defects. Instead, therefore, of So & So's racing machine running with Blank & Blank's tires it is proposed that the rôle shall be reversed and that the tire makers shall run a race in which they shall use So & So's machine. In other words, there shall be a race of, say, seven or eight hundred miles for tires. The competitor shall have the right to change anything he likes—driver, motor, differential, steering gear—anything or everything except the tires. The first car to arrive would be the winner, as in an ordinary speed race. To give equality there must, of course, be some uniformity of type of car. It is pointed out that the tires would be at the mercy of the driver, for their life can be lengthened or shortened considerably according to whether the car is driven intelligently or recklessly. The same thing applies, however, in present road races.

Report has it that the Sporting Committee of the Automobile Club of France is going to take this matter in hand and work out a perfect competition. As to this, however, one can be reasonably excused for having one's doubts. A competition of this nature has too many difficulties to get beyond the proposition stage.

BEND IN ROAD WHICH FORMS PART OF PROPOSED CIRCUIT AT LAKE CHAUTAUQUA.

BRITISH AUTO ACTIVITIES.

G. B. Cup Discussion.--Touring Car and Commercial Vehicle Trials.

Special Correspondence.

LONDON, Aug. 11.—The withdrawal of the Automobile Club of Great Britain and Ireland from further participation in the Gordon Bennett contest, reported last week, has not been followed by any explanation from the club as to the reasons influencing its action. The English manufacturers of racing cars do not seem to have been consulted in the matter at all; both S. F. Edge and the Star company are strongly opposed to the change, and wish to be able to compete next year. On the other hand, the Wolseley management entirely agrees with the club, and thinks that the great expense incurred in building and running racing cars is out of all proportion to the benefit accruing therefrom. For this reason the two Wolseleys entered for the Ardennes Circuit race this week were withdrawn at the last moment.

The desire of the A. C. G. B. I. is apparently for an international touring-car contest, something on the lines of the "Tourist Trophy" race which takes place in the Isle of Man on September 14. The event has been promoted with the object of producing the ideal touring car, and the principal feature is the limitation of the fuel—twenty-five miles per gallon of gasoline being the allotted supply. The weight

of the chassis is to be between 1,300 and 1,600 pounds.

The popularity of this event may be judged from the fact that more than sixty cars have been entered, including two White steamers and a Cadillac. The route is the same as that for the eliminating trials in May last, the total distance being four laps, or 210 miles.

The discontent occasioned by the 1903 Motorcar Act has caused the appointment of a Royal Commission, which will thoroughly inquire into the working of the motor laws. A report will be made as to what changes in the law are necessary, and motorists on this side are convinced that the result will be greatly beneficial to the industry. The Automobile Club and Motor Union are busy collecting evidence of police persecution and other injustices, and will make out a good case for themselves.

The Duke of Connaught has just purchased a 30-horsepower six-cylinder Napier, his previous car being a Napier of the same type—the first six-cylinder built. Prince Arthur of Connaught has also purchased a car, and the automobile fever seems to be spreading in the royal family with great rapidity.

General Booth, the great Salvationist, has commenced a big tour through England, visiting most of the large towns on his way. As on his previous tour, the General is solely using the automobile for the transport of himself and his staff, and eight cars have been chartered, mostly 15-horsepower Corré cars, with De Dion engines.

Trials on a large scale for the lighter classes of motor delivery vans and carriers are being organized by the Automobile Club, and will be held in October. Vans for 5-cwt., 10-cwt., 20-cwt. and 30-cwt. loads will be thoroughly tested by the trials, extending over 30 days and 2,000 miles of road. These trials will undoubtedly be of great practical value to the numerous trades that are considering how best to cheapen and quicken their modes of transport. A good representative list of entries has been already received, and the list closes on August 23.

The eliminating trials for the race for the British International Cup for motorboats were held in the Solent on August 1. Out of the six starters only *Napier II.* finished the course, the other five boats experiencing various troubles which prevented them finishing. Accordingly *Napier II.* has been selected as the first English representative in the race, and the other two representatives will be selected on the results of a second trial which is being held to-day. The Motor Yacht Club's motorboat reliability trials were spoiled by the bad weather on the second day. Out of thirty-seven competitors, nine made non-stops over the two days' course, while five had to retire owing to the rough weather. The trials were, however, a great success, and the awards will be announced later.

Killing International Races.

Special Correspondence.

PARIS, Aug. 12.—The decision of the Automobile Club of Great Britain and Ireland not to compete for the James Gordon Bennett Cup next year has occasioned some surprise here, in view of the fact that England led the organized resistance last year against France's endeavors to kill the Gordon Bennett race. It would seem that the cup will now die a natural death, for Germany is little inclined to compete, being fully engaged in organizing its own event, and France's intention to abstain is well known. It is pointed out in official circles that America and Italy are the only two possible competitors; that the former is content with its Vanderbilt Cup race, and if the latter should accept the cup and organize next year's race the absence of foreign competitors would rob the event of all value. "The cup is now dead and buried," say the French leaders. "Let us now set to work to organize our Grand Prix for 1906."

The statement in a recent issue of the Paris edition of the New York *Herald* that France wishes to abstain from the Vanderbilt Cup race on account of the expense is strongly repudiated by the Parisian press and local automobile authorities. They declare that money matters would not prevent such firms as Richard Brasier, Darracq, Panhard or De Dietrich from crossing the Atlantic. If they do not compete it will not be because of the cost, but in order not to create another situation like the Gordon Bennett difficulty. In any case they would never accept the financial help which the *Herald* declares American sportsmen are ready to offer in order to tempt them to compete.

A meeting of the race committee of the Automobile Club of France is soon to be held to make a final disposition of the matter.

Foreign News Notes.

The Society of British Motor Traders and Manufacturers has held its first ballot for space and position at Olympia for its international show in November next, a full month earlier than the Paris Salon. The number of stands dealt with was 165, and the total amount of space allotted 100,000 square feet, or three-quarters of all the available space. The leading Continental and American firms intend being well represented.

A motor omnibus, designed and constructed by the London firm of Thornycroft, is being experimented with in Rome. Should it meet with public patronage, additional 'buses will be ordered.

The British Royal Commission to investigate the working of the motor car act of 1903, which expires next year, has now been appointed. It consists of Viscount Selby, better known as Mr. Gully, late speaker of the House of Commons, as Chairman, with the Marquis of Winchester, Sir William Forwood, Mr. Henry (Chief Commissioner of Metropolitan Police) and Mr. Muir (Scotland), as commissioners, together with representatives of the local government board and Ireland.

President Loubet, of France, who intends shortly to withdraw from public life, has just become possessed of a very handsome 25-horsepower C. G. V. car, which he intends using first at his hunting seat, Rambouillet.

A net profit of 150,000 marks ($37,500) has accrued as the result of the automobile show in Berlin last February, a fact that has greatly cheered the hearts of the promoting societies and swelled their coffers in no slight measure.

The Italian A. C. has received an invitation from the minister of war to place as many cars, not below 12-horsepower, as possible at his disposal for the Italian Grand Manoeuvres in the Abbruzzes from August 20 to 31. The owner or driver will receive ten lires per diem, whether the car is used or not, and the mechanician or second assistant five lires. Besides this, a certain payment will be made for the wear and tear of the tires.

The full programme of the Brescia week has been published and contains the following events: September 3, finish of the motorcyclists' 1,000-kilometer race for the Brescia prize; September 4, 5 and 6, heavy van and wagon competition; September 7, power boat races on the Garda Lake; September 8, Benaco power boat races; September 9, weighing in of the racing cars; September 10, Brescia circuit for racing cars, Brescia-Cormona-Mantua and back four rounds for the Florio prize.

The British Motor-Boat Club held on August 7 its forty-mile race for the "Entente Cordiale" cup, presented to it by Mrs. Walker Munro, on the occasion of the French squadron's visit to English waters. The contest developed on purely English lines, as *Trèfle-à-Quatre* and *Dubonnet II* failed to materialize. Of other English entries neither *Competitor* (formerly *Napier Minor*, but now fitted with a 100-horsepower Siddeley engine) nor *Hutton I* turned up. The start took place from a line between the British and French fleets, *Brooke I*, of 300-horsepower, finishing first in 1 hour 18 minutes 21 3-5 seconds, but as a wrong course was taken for the last leg the cup went to the second boat, *Napier II*, steered by John Scott Montagu and Lionel de Rothschild, in 1:29:53 4-5. Lord Howard de Walden's *Napier* was third, in 1:32 45 2-5.

A huge indemnity has been awarded a French carpenter who was run over by a car belonging to the son of the celebrated French actor, M. Constant Coquelin. The car was driven by Jean Coquelin's chauffeur, but the owner was held responsible for damages amounting to $7,200 and a fine of $800.

WEBB JAY SERIOUSLY INJURED AT BUFFALO.

Two-Days' Race Meet at Kenilworth Track Marred by Accident to Well-known Driver---Ideal Weather and Large Attendance Make Meeting Otherwise Successful.

Special Correspondence.

BUFFALO, N. Y., Aug. 19.—Aside from the terrible accident which befell Webb Jay, the second annual race meet of the Buffalo Automobile Racing Association yesterday and to-day, was a success in every particular. The weather conditions were the best, the crowds were about the largest ever seen at Kenilworth Park, and the enthusiasm manifested has seldom been equaled here.

Jay's accident was the one happening that marred the meeting, and this occurred Friday afternoon in the fourth mile of the ten-mile free-for-all, when Jay, Lyttle and Burman were on the track. On the back stretch Jay was seen to become enveloped in a cloud of dust from the cars ahead. When this cleared, neither he nor his car could be seen, but a long gap in the fence told the story—the car had crashed through the fence and rolled down the embankment beyond. Some boys who happened to be near the scene of the accident rushed to the spot, and found Jay unconscious and covered with mud and water, while his machine was submerged in the muddy water nearby. An ambulance at the track was hurried to him, and he was taken to the German Hospital, where it was found that he had sustained fractures of the left forearm, several ribs on the left side, and also of the left thigh. His left lung was punctured, and there was a possible fracture of the skull. As soon as it was known that an accident had occurred, the grandstand was immediately in an uproar; spectators rushed onto the tracks despite the fact that Lyttle and Burman were still running, unaware of Jay's mishap. The race was finally stopped in the seventh mile, Burman having covered this distance in 7:15.

Barney Oldfield did not participate in the events on Friday, but gave a five-mile exhibition in his *Green Dragon*, breaking his former record for this track. He covered the distance in 4:41 3-5. Last year's record was 4:52 flat.

The first event of Friday's meet was a two-mile motorcycle race, which was won by Leonard M. Gard, with William Chadeayne second, and George Roessler third. Time, 3:16.

Herbert Lyttle, Pope-Toledo, and Fred Tone, Marion, made a pretty race out of the second event, five miles for cars under 1,432 pounds. Lyttle was in the lead for two miles, when Tone closed up. The finish was exciting, Lyttle winning by fifteen yards. Time, 5:34.

The third event, two heats of the five-mile open Buffalo Derby, for a prize of $500, cash or plate, came next. Webb Jay and Charles Burman started in the first heat. Burman shot ahead and kept the lead for three miles, fully a quarter of a mile in front of Jay. It looked defeat for Webb, but in the last mile he forged to the front and won by twenty yards. Time, 5:09 3-5.

In the second heat Herbert Lyttle's car went wrong and he was compelled to retire after having the race practically won. Montague Roberts, in Harry Houpt's Thomas racer, won the heat in 5:27.

In the five-mile open for stripped cars, George Salzman, Thomas; Fred Tone, Marion, and Herbert Lyttle, in a Pope-Toledo, were the contestants. Lyttle won from Salzman by twenty yards. Time, 5:24 4-5.

A much larger crowd appeared at the track to-day. The opening event, a two-mile motorcycle race, was won by Robert H. Gard, a brother of the winner on Friday. Time, 3:05.

Herbert Lyttle next came on the track to give a five-mile exhibition. His car, however, was not in good order; time, 5:32 1-5, nearly fifty seconds poorer than Oldfield's time on Friday. Lyttle gave the exhibition because the Buffalo owners' handicap was called off for lack of entries.

The three-mile novelty race for fully equipped touring cars, carrying driver and three passengers, was amusing. Charles Soules won the race, as George Salzman and R. Magoon did not comply with the conditions of the contest. Time, 4:47.

The five-mile national championship brought out Barney Oldfield, M. Roberts and Herbert Lyttle. There was a false start, Oldfield and Roberts going three miles before they were flagged. The next start gave Oldfield a fine position and good advantage. He went to the front, followed by Lyttle, and then by Roberts. Roberts, in the Thomas racer, appeared not to have a chance, but he stuck to his post and caught Lyttle, who retired in the fourth mile. Oldfield won in 4:52 3-5.

The Diamond Cup race furnished the surprise of the day. It was fully expected Oldfield would win. Lyttle qualified in the first heat, and Oldfield in the second. In the final Lyttle went to the front and raised such clouds of dust that Oldfield took no chances and was readily beaten by his opponent.

The following are the summaries:

FRIDAY, AUGUST 18.

Two-mile motorcycle race.—Won by Louis M. Gard; William Chadeayne, second; Chas. Lang, third. Time, 3:16.

Five miles for cars weighing less than 1,432 pounds.—Won by Herbert Lyttle; Fred Vane, second. Time, 5:34.

Five miles, free-for-all, Buffalo Derby.—First heat, won by Webb Jay; Charles Burman, second. Time, 5:09 3-5. Second heat, won by M. Roberts; Herbert Lyttle, second. Time, 5:27.

Five miles for stripped touring cars.—Won by Herbert Lyttle; George Salzman, second; Fred Tone, third. Time, 5:19.

Five-mile exhibition.—Barney Oldfield. Time, 4:41 3-5.

Ten miles, free-for-all.—Stopped on account of accident to Webb Jay, Burman finishing seven miles in 7:15.

SATURDAY, AUGUST 19.

Two-mile motorcycle race.—Won by Robert H. Gard. Time, 3:05.

JAY'S WHITE STEAM RACER IMMEDIATELY AFTER ACCIDENT AT BUFFALO RACES.

Five-mile exhibition.—Herbert Lyttle. Time, 5:32 1-5.

Three-mile novelty race, for touring cars.—Won by Charles Soules. No second; Salzman and Magoon failed to stop on second lap. Time, 4:47.

Five miles, national championship.—Won by Oldfield; M. Roberts, second; Time, 4:52 3-5.

Five miles, for touring cars.—Won by George Salzman; Charles Soules, second; R. H. Magoon, third. Time, 6:06 2-5.

Ten miles, final Buffalo Derby.—Won by Charles Burman; M. Roberts, second. Time, 10:38.

Five miles, free-for-all, Diamond Cup race.—First heat, won by Herbert Lyttle; M. Roberts, second; Time, 5:04 3-5. Second heat, won by Oldfield; Charles Burman, second. Time, 5:27. Final, won by Herbert Lyttle; Oldfield, second. Time, 4:52.

Universal joints have a great deal of hard work to do, and should therefore be given the best possible care. Above all, they should be kept thoroughly lubricated at all times, and the protection from dust should be as nearly perfect as possible.

More automobiles are to be seen upon the streets of this city than any other town of its size in the Pacific Northwest.—*Pendleton (Ore.) Tribune.*

A Judicial View of the Automobile.

IN the multitude of opinions, official and unofficial, expressed about automobiles, so rare is an utterance that combines judicial learning and sound common sense that the Automobile Club of America has taken occasion to record in a pamphlet for distribution, a decision rendered by City Judge Nicholas C. Downs, of Stamford, Conn. This has been put out by the Club in the form of a pamphlet containing the decision made in the case of Harry P. Stevens, who was defended by A. E. Ommen, special counsel for the Automobile Club of America. The decision of the Court reads as follows:

MEMORANDUM OF DECISION.

This is a prosecution for a violation of Section 2089 of the general statutes as amended by Chapter 108 of the Public Acts of 1903, the controlling provisions of which, in so far as the present case is effected, are as follows: "No motor vehicle shall be run on any highway or public place at a rate of speed dangerous to life and property, or on any highway or public place outside the limits of the city or borough at a rate of speed to exceed fifteen miles an hour, or on any highway or public place within the limits of any city or borough at a rate of speed to exceed twelve miles an hour."

It has been claimed that the construction of the statute and the method of its enforcement adopted in this city has resulted in unnecessary interference with tourists, and the extended discussion which occurred upon the trial of this case has led me to give the whole subject a careful examination.

It is apparent that the purpose of this statute is to prevent the running of motor vehicles in such a manner as to endanger persons or property, and that the prescribed limitation of speed was intended principally as a means to this end. The legislature has no authority to regulate the conduct of individuals except in the interest of preserving the peace, health, safety and good morals of the community and the right of life, liberty and property. Hence, the law does not concern itself with the rate of speed of vehicles in highways and other public places except some regulation be required to protect persons and property. Whether in a given instance a vehicle is being run in violation of this principle may not be determined by the rate of speed alone. To attempt to run a vehicle through a crowded thoroughfare at even a slower rate of speed than the minimum prescribed by the statute, if, because of the conditions existing at the moment, such attempt endangers life, limb or property, is a violation of the statute, and may be a more serious and flagrant violation than to run at a rate of speed exceeding the statutory limit along a road which the driver can plainly see is so free from travellers or intersecting streets or private ways as to preclude the possibility of a collision. The latter case presents a mere technical offense, while in the former there would be a disregard of the rights of others which would constitute a wrong *per se*, even though the present statute did not exist, and any person injured might maintain an action of tort against the wrongdoer.

The statute in question is a salutary one and should be enforced, but its enforcement should be marked by the exercise of good sense and a sound discretion, and more heed should be given to the manifest object of the enactment than its mere letter in the fixing of a minimum limit of speed. Severe penalties should be imposed only in cases wherein the evidence shows that the spirit of the law has been violated.

The automobile, like many other innovations upon established methods or conditions, has many opponents. And I have no doubt that such opposition is due in no small degree to the misconduct of a considerable percentage of automobilists who habitually violate the law of the road and in many ways evince an utter disregard of the rights of others. And while to the extent that as members of a class the innocent may suffer with the guilty in the reputation thus established, no such sentiment has any place in a judicial proceeding. Every defendant is entitled to be judged according to his own conduct without reference to the misdeeds of others. The trolley car was at one time quite generally regarded as an unwarranted encroachment upon the rights of the public in the highway, and while its high rate of speed results in many deaths and accidents of less serious nature, its great utility has gradually induced a change in the sentiment which once existed against it, so that at the present time complaints are rarely heard, although cars are continually running through the streets of this and nearly every other community at a rate of speed in excess of the statutory limit.

By city ordinance, the speed of vehicles drawn by horses is limited to six miles per hour, and although this speed is exceeded in numerous instances each day, prosecutions are never instituted unless the fast driving is accompanied by recklessness or disregard of the rights of others.

The owners of automobiles are entitled to no greater immunity from statutory restrictions than any other class of individuals, neither are they properly to be regarded as the objects of greater severity or strictness.

These vehicles have come into very general use, and their use is no longer restricted by reason of expense to persons of large means. In addition to their quite general use as a means of recreation, motor vehicles of various kinds are being substituted in place of delivery wagons and trucks drawn by horses. A vast amount of capital is represented in their ownership and the industry which their manufacture has brought into existence is a large and important one.

While running at the rate of speed shown in the cases which have come before this court, an automobile can be stopped in less than two seconds and within a distance very little in excess of its own length.

Among the offenders against this statute we find persons whose character as law-abiding citizens, having a due regard for the rights of others, is well established.

These considerations logically lead one to the conclusion that in these cases we are not dealing with a criminal class nor with a great evil which is to be stamped out by making an example of the first offender we may happen to catch regardless of the gravity of the case.

Of a large number of cases which have been brought before me, there has not been a single instance of recklessness, but in every case it has been shown that the vehicle was in the hands of a competent person paying strict attention to his duty and having his machine under perfect control. There has been no prosecution for violation of the speed limit in any of the principal or much frequented streets in the center of the city.

In the case at bar, the machine was going at the rate of about eighteen miles per hour over a portion of Main street between the eastern slope of Clark's Hill and the railroad crossing. It was being run by an experienced and competent chauffeur under direction of its owner who had provided the most approved type of speedometer, and both the owner and the chauffeur testified that they were endeavoring to keep within a ten-mile limit, as indicated by the speedometer, while passing through Stamford, believing that to be the law in Connecticut. There was no apparent danger to person or property. The policeman on duty at the place in question timed the speed of the car over one-eighth of a mile, and upon finding it to be as above stated, arrested the chauffeur. I believe this method of ascertaining the rate of speed to be more reliable than the use of the speedometer; in fact, with a good watch (as the one in question was shown to be), there would be no reason why the exact speed could not be ascertained, and I find, therefore, that the defendant exceeded the statutory speed limit. But the evidence shows that the owner of this car, by instructions to his chauffeur, by watching the speedometer and by his conduct generally, was endeavoring to obey the law, and was careful to a greater degree than the defendant in any of the other cases I have heard. His offense, therefore, was merely technical and only a nominal fine should be imposed. The defendant is fined one dollar.

A shaft which has a little play owing to a slightly worn bearing acts as a hammer to increase the play. Moral, take up looseness as often as it appears, without waiting for it to get serious.

Letter Box

How to Determine Short Circuits.

Editor THE AUTOMOBILE:

[248.]—My car has two separate storage batteries—No. 1 and No. 2—with one joint wire connected with binding posts on each separate battery and two independent wires, one connected with each of the other poles of its respective battery. On No. 1 I had sufficient current to produce a good spark, but No. 2 was run down. I took out No. 2 without disturbing the wires to No. 1, and connected up the new No. 2 battery, which worked all right. On trying again original No. 1, I could get no spark. I then disconnected the joint wire from its terminal on the new battery No. 2, and still could get no spark. Then I shifted the wires on No. 1 to the other poles and got good sparks on both batteries.

Someone has told me that I must have a short-circuited battery, but how could this account for original No. 1 working all right until I coupled on the new battery No. 2? If there is a short circuit of the batteries, how am I to ascertain the trouble and correct it?

Could you also refer me to any practical treatise which will inform an automobilist in some sensible manner on the every-day questions that are liable to come up in connection with the electrical system of an ordinary automobile? I do not want a scientific book, but merely answers to such questions as I have outlined here, including further, how to locate a short circuit, or grounding on either the primary or secondary wiring?

Since installing my two batteries as above stated, I have had better firing than ever before on both. J. E. R.

New York City.

You can determine whether or not the batteries are short-circuited by connecting an ammeter in series between them. If the ammeter shows current when the switch is open, then clearly there is a leak or short circuit.

A simpler, though not such a reliable way, is to disconnect at one end the "common" wire which couples both batteries, and if a spark is produced when the free end of this wire is snapped against the binding post of the other battery it shows that current is flowing and indicates a short circuit, providing the switch is open, as before.

As in almost all ignition systems a wire is used for one side of the circuit and the metal of the machine for the other side, a "ground" and "short circuit" mean practically the same thing, when applied to the wiring. When a short circuit exists in the primary it results in the production of a weak spark at the secondary. It may also be detected by the feeble action of the trembler even when the coil is operated by a powerful battery. A bad short circuit in the primary will heat the coil and melt the insulation. It will also run the battery down very quickly.

A short circuit in the secondary will result in a weak spark, even with a strong battery and with the trembler functioning properly. If there is a "dead short" in the secondary, no spark will be produced when the trembler is in operation. In short, the action of the trembler is the test for primary "shorts," and the spark itself—its condition or its absence—the test for secondary "shorts."

In making the afore-mentioned tests on the coil, care should be taken that the wiring external to the coil is in perfect order, otherwise the results may be misleading. It is evident that on coils which have "mechanical" tremblers all of these tests cannot be made. In the latter type of coil a "short" in the primary may be detected by an abnormally large spark at the contact points and a small one on the secondary wire. Secondary "shorts" are located in the same way in both types of coils.

To Stop Missing of Explosions.

Editor THE AUTOMOBILE:

[249.]—Relative to a balky motor, I have tried all your published suggestions and have failed to get any results. I have a 12-h. p. single-cylinder runabout. When the car is at a standstill, the motor will run smoothly and without a skip; but when it is in motion the engine skips and causes a pound, the machine jumping ahead at every explosion. I have tried everything—new plugs, batteries, and when I test the ignition I get a good spark. I do not know what the trouble is. The machine, when in motion, will not run more than five or six revolutions without a jumping motion.

Any information you can give me on this matter will be greatly appreciated.

Norwich, Conn. L. F. J.

Your trouble is evidently in the carburation, as you say you get a good spark. The gasoline passages may be partially choked, so that sufficient gasoline is not supplied to form an explosive mixture when the throttle is wide open; yet the motor will run steadily on a nearly closed throttle, as the demand for fuel is then much less than on a wide open throttle.

See that the gasoline piping is clear from the tank to the nozzle in the carbureter, and that gasoline flows freely from the latter when the float is held down.

Assure yourself that both inlet and exhaust valves work freely in their guides, and that the springs on both valves are of the proper tension. Try coupling four storage cells in series, so as to get about six volts on your coil, and note the effect. Your "good spark" may not be good enough to ignite the charge under high compression, although it may do so under low compression, such as you get with partially closed throttle.

Your new plugs may be defective; may have cracked or "porous" porcelains. Use the very best plugs you can purchase. Examine your ignition advance mechanism and see that it works freely and is thoroughly lubricated with thin oil. Be sure that the make-and-break device on the cam shaft has its platinum points clean, and that they make firm contact at the proper time.

Do all this and let us hear from you as to the results.

Connecting Up the Spark Coil.

Editor THE AUTOMOBILE:

[250.]—I note your reply to No. 247 concerning changing coil connections.

While in the main it does not make any difference as to the poles of the battery which go to the coil or the ground, yet with certain makes of coils there is a decided difference in battery economy. This is the case with certain foreign coils in which all connections are plainly marked, and which are noted for their economy of battery consumption.

While the coil would apparently work all right if connected up opposite to the way it was marked, yet if connected as marked the battery would give almost twice as much mileage as in the former case. I have never had a satisfactory explanation of this phenomenon. I have heard two theories advanced, however. One was that there were some connections between the primary, secondary and condenser, so arranged that the battery current either helped or hindered the secondary, according to its direction. The second was that owing to residual magnetism of the core it would more readily become demagnetized if the current flowed in one direction rather than in another, thus tending to make a better spark.

I make no comment on either of these theories, but give them for what they are worth. HAROLD H. BROWN.

Boston, Mass.

We would like to hear from other correspondents on this interesting topic.

New York Liberal—Jersey?

Editor THE AUTOMOBILE:

[251.]—Some time ago the New York *Herald* published an article, giving the license laws of all the states in regard to automobiles. Referring to New Jersey, the article said a resident of New Jersey could drive his car through New York state provided he complied with the laws of his own state in regard to license and displayed his state initials—"N. J."

As a subscriber, I ask that you kindly advise if I can run through New York state as above stated, without procuring a New York state license? A. W. P.

New Brunswick, N. J.

In answer to your inquiry regarding the operation of the New York license law, if you are registered in New Jersey, and

your car is properly labeled, you would be at liberty to go anywhere you please in New York state without having to procure a license in New York. We really do not know why the New York authorities have not exempted New Jersey from this provision, for the reason that New Jersey does not permit New York automobilists to enter the state without getting out a New Jersey license. In fact, any automobilists doing so are open not only to fine, but to imprisonment. However, as you reside on the Jersey side, you will be able to enjoy the liberality of the New York regulations.

Price of Pleasure Vehicles.

Editor THE AUTOMOBILE:

[252.]—I have been informed that a prominent manufacturer intends putting out for 1906 a 10-h. p. runabout to sell for $400, and a 30-45-h. p. touring car, weighing 1,500 pounds, to sell for $1,500. In your opinion, will a car of this horsepower and such light weight give satisfactory service over our roads? And further, if this manufacturer does as above stated, won't it upset present prices, and force all the manufacturers to lower their prices very materially? H. W. W.

Atlanta, Ga.

We have already discussed the subject in our editorial pages. We would not undertake to pass an opinion upon a car we had never seen. We do not know of any manufacturer who is in business for his health, and no doubt such machines, if built, will be marketed for what they are worth. You can buy an ordinary suit of clothes in New York city at any price from $10 to $80 and get *value received,* no matter what the price may be.

Our own belief is that the price tendency for high-class cars will be upward and not downward.

Solid Tires on a Runabout.

Editor THE AUTOMOBILE:

[253.]—Will you kindly state, through the Letter Box, your opinion as to the advisability of using solid tires instead of pneumatics on an Oldsmobile runabout. I notice several makes of solid tires advertised and wish to know whether they will give the proper resiliency and if they use more motive power. E. P. M.

Zebulon, Ga.

Solid tires do not of course have the same resiliency as pneumatics, since rubber does not possess equal elasticity with air under moderate compression. While there has been a great improvement in solid tires in the last few years, and they are giving satisfaction on heavy automobile trucks, electric cabs and coaches, and even on gasoline stages used on country roads, they are not recommended for use on light runabouts, even by the makers who manufacture them.

Vehicles to be fitted with solid tires are built especially heavy, particularly in the axles, steering knuckles, springs and bearings, which are subject to injury by shocks from the road surface. With solid tires, which must be made stiff enough to resist the crushing effect of driving over loose stones on the road, there is an incessant pounding or hammering effect on the running gear of the car, which is greatly intensified when fast driving is indulged in, as is apt to be the case with a pleasure vehicle geared to the maximum of its power, and this is likely to result in bent axles, broken balls or cones in the bearings, and in breakages of knuckles and axle stubs due to crystallization of the metal.

There would, of course, be a greater loss of power with solid tires than with pneumatics, particularly on rough roads.

If you are having an unusual amount of tire trouble you would better change your rims or wheels so as to fit tires of larger size which are stronger and are less liable to puncture owing to their thicker tread; or, if you do not care to go to this expense, you may find that puncture proof pneumatic tires will give satisfaction if you are careful not to do much fast driving.

Lost and Found.

Editor THE AUTOMOBILE:

[254.]—On the highway between Ft. Plain and St. Johnsville, N. Y., I picked up a large number card, bearing the number "11961 N. J." The owner of this card is welcome to same, if he will call for it.

A. A. MILLER.

Ft. Plain, N. Y.

Size of Muffler.

Editor THE AUTOMOBILE:

[255.]—What is the proper size of muffler to be used on a four-cylinder touring car, the cylinder dimensions being 4 1-2 inches bore and 5 inches stroke?

E. W. B.

Warren, O.

Mufflers are made in so many different shapes and differ so much in their internal arrangement that a direct answer to your question is impossible unless some particular make of muffler is specified. In such case the maker of the muffler would naturally know more about the size that should be used than anyone else.

Michigan Farmer Enthusiast.

Editor THE AUTOMOBILE:

[256.]—An article in your issue of August 3 states that Muncie, Ind., with a population of 30,000, has over 100 automobiles.

Coldwater, Mich., with a population of about 6,000, has over fifty cars. While southern Michigan is noted for miserable roads, new cars are constantly appearing.

In driving my touring car from Clear Lake, Ind., Sunday, a distance of fifteen miles, I saw five other machines on the road. As I am just an ordinary farmer, and the only one in these parts that owns a car, I am considered "a freak," but think I get a much enjoyment out of it as any of my "city cousins." CHAS. W. ABBOTT.

Reading, Mich.

NEW LITERATURE.

A new edition of the work entitled "Automobile Laws" has been printed by the Automobile Club of America under the supervision of William W. Niles, counsellor-at-law to the club. This is a paper-covered volume, 7 by 10, and containing 175 pages. It contains an exact transcription of every American state law now on the statute books, and an alphabetical index of states with an excellent list of numbered references to the subdivisions of each law. Following is the legal situation in the United States as disclosed by the work:

States in which laws have been passed: Alabama, California, Connecticut, Delaware, District of Columbia, Florida, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Massachusetts, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Ohio, Oregon, Pennsylvania (new law takes effect January 1, 1906), Rhode Island, South Carolina, South Dakota, Tennessee, Vermont, Virginia, Washington, West Virginia, Wisconsin.

States in which the legistatures have not passed any automobile laws: Arkansas, Colorado, Georgia, Idaho, Louisiana, Mississippi, Nevada, Texas, Utah, Wyoming.

North Carolina has passed a law authorizing the county commissioners to pass speed ordinances, and exempting New Hanover and Mecklenburg counties from its provisions.

The Krieger electric automobiles, made by one of the pioneer French firms in its line, embody a well-thought-out method for allowing the use of driving gears of various sizes. Cast integral with the body of the electric motor is a stout arm, long enough to reach to the driven axle of the car. At the end of this arm is formed a large ring, split at one side and fitted with a pinching screw. Inside the ring is an eccentric which is mounted on the axle so that it is permitted to turn but is prevented from moving along the axle by collars. When the eccentric is turned, the distance between the motor and the axle is, of course, varied according to the position of the eccentric.

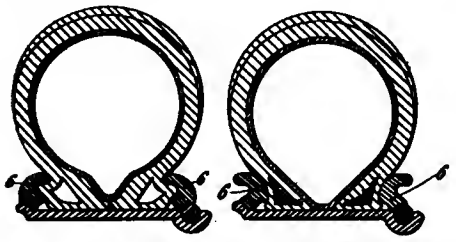
When it is desired to insert a new set of gears of sizes different from those previously used, the pinching screw is loosened and the eccentric turned until the distance between the motor and the axle is just sufficient to mesh the gears properly. When the ring is tightened on the eccentric, the whole arm is, in effect, solid.

Patents

Wheel Rim.

No. 796,873.—F. A. Seiberling, of Akron, Ohio.

The Goodyear "universal rim," having the retaining strips *6 6* so formed as to be adapted, by reversing them, to hold either



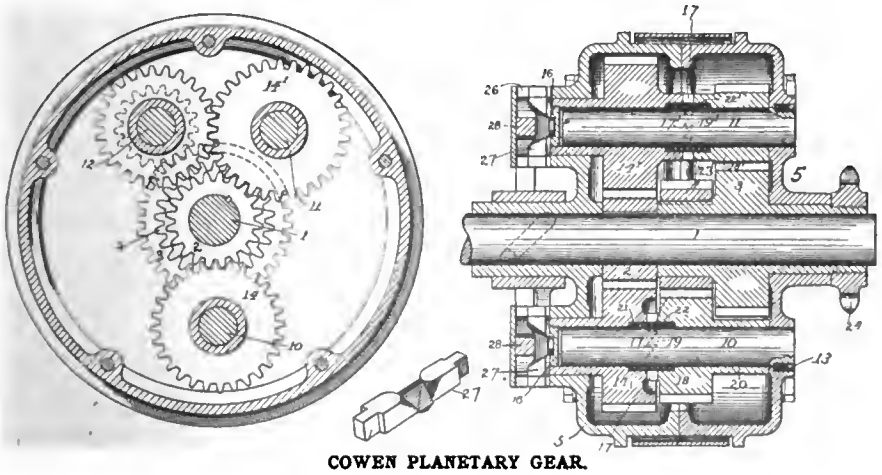
SEIBERLING WHEEL RIM.

the regular clincher tire or the special form of tire shown in the right-hand view.

Planetary Gear.

No. 795,819.—H. K. Cowen, of Chicago, Ill.

Three forward speeds and one reverse are obtained, with but a single friction band, and no clutch. This result is accomplished by alloting only a single pair of planetary pinions to each forward spced, instead of two or three, equally spaced around the circle, as is customary, and by making each planetary pinion separate from the other planetary pinion of the same speed, so that it turns independently of it until the two are engaged by a claw coupling operated by suitable controlling mechanism. The effect of this is to render all the planetary pinions inoperative so far as transmission of power is concerned, except the pair which may be clutched together. Again, the direct drive is obtained by clutching simultaneously the pinions for the high and intermediate speeds, thus locking them and preventing relative movement so that the whole system turns as a unit. The details of the system are seen in the drawings, in which *1* is the driving shaft, having keyed thereon the pinion *2*. The pinions *3* and *4* are connected together and sleeved on the shaft with the driving sprocket *24* secured to them. The split housing *5* is sleeved on *3* at one end, and on the shaft at the other, and carries the three shafts *10*, *11* and *12*, on which the planetary pinions are sleeved. These pinions, as for example *14* and *18*, are normally separated by the compression springs *22*, and engage each other by the clutch teeth *17 19* when pressed together. The necessary pressure is applied to the pinions *14*, etc., by the cam ring *28*, which has teeth and notches acting on the sliding pieces *27*, each of which has a pivot bearing in the plate *16* screwed into the end of *14*. The pinions on shaft *10* give the intermediate speed, those on *11* the slow speed, and those on *12* the reverse movement through the intermediary of the gear *14*.

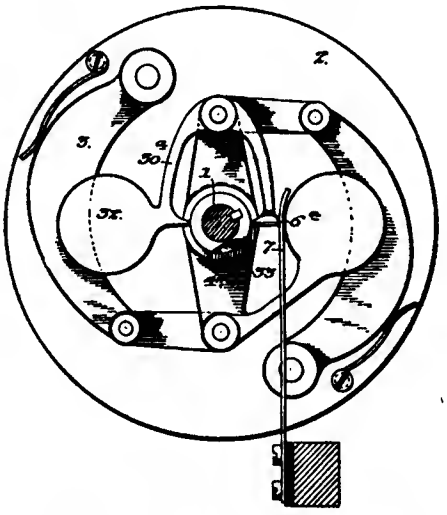


COWEN PLANETARY GEAR.

Automatic Spark Timer.

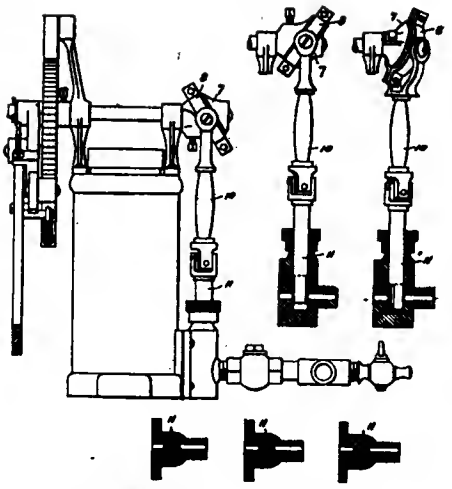
No. 796,730.—T. B. Jeffery, of Kenosha, Wis.

In this device the spark time is automatically determined by the speed of the



JEFFERY AUTOMATIC SPARK TIMER.

motor, and when the speed exceeds a predetermined limit the contact is automatically interrupted, so that the motor necessarily slows down. In the drawing *7* is the fixed contact blade, and all the other mechanism—disc *2*, centrifugal weights *3*, rocking arms *4*, etc.—revolve with the shaft *1*. The contact is made between *7* and the toe *6a* of the bent lever *30*. Assuming the rotation to be in a clockwise direction, the expansion of *3 3* rocks *4 4* in the same direction till *6a* reaches the notch *33*, into which it is carried by the centrifugal action of *32*, thus failing to make contact with *7*.



KIPP MECHANICAL LUBRICATOR.

Mechanical Lubricator.

No. 796,659.—O. G. Kipp, of Madison, Wis.

A lubricator in which the pump plunger is made to act as a valve, and, in order to avoid the necessity for a stroke longer than would be required simply to pump the oil, the plunger is made to rotate at the top and bottom of its stroke, thus supplying the valve movement. The combined axial and rotative movement is imparted by the tilted eccentric *7*, which works in a strap *8* connected by trunnions with the pitman *10* and plunger *11*. The base of the plunger is slotted as shown in the inverted detail, and the sections show how it acts as a valve.

Power Air Pump.

No. 796,449.—S. N. Rapp, of Detroit, Mich.

A gear-driven pump designed for installation in an automobile, and having its crankshaft, on which the gear is keyed, mounted in a slide which can be shifted to engage the gear with the driving pinion, or disengage it as desired.

Battery Holder.

No. 796,517.—F. Jackson, of Denver, Col.

A box for holding dry batteries. It has brass spring clips at top and bottom for engaging and holding the zinc shell and the carbon respectively, and the clips are suitably connected so that wires are not required.

THE AUTOMOBILE

VOL. XIII. No. 8

Published every Thursday by

THE CLASS JOURNAL CO.,

Flatiron Building, Madison Square,

NEW YORK CITY.

Cable Address - - - - - Autoland, New York
Long Distance Telephone - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2.00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 5 o'clock p. m. Monday for the issue of Thursday following.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies Printed in 1904,	- - -	639,300
" "	This Issue, - -	13,500
" "	Since Jan. 1, -	474,000

Decline of Track Racing.

The horrible accident to Webb Jay, driver of the White steam racing car at the recent Buffalo meeting, coming so soon after severe accidents to other well-known drivers on the track, has solidified public sentiment against track racing. For some time past track racing has been slowly dying from a complication of organic diseases, and influences from the outside, among them the series of accidents referred to, have recently hastened dissolution.

Already in the metropolitan district of New York track racing is practically dead, for the good and sufficient reason that it does not pay the promoters. Aside from and above all financial considerations, however, track racing has reached a point where participation in it by fast machines is simply gambling with fate, with the chances against man and machine. The physical limit of safety has been reached and overpassed. In the combination of track and machines the former is a constant and the latter a variable. The value of the constant on the side of safety is practically unchangeable, while the speed possibilities of the machine vary in an ever-increasing ratio. The result is just the same as would be obtained by the employment in a machine of a structural member of fixed section and strength of material to which constantly increasing stresses would be applied—the result could only be fracture. And when (in track racing) to the exact laws of natural forces are added such uncertainties as dust obscuring the vision of the driver and the recklessness often occasioned by close competition, which are always represented by a plus sign, the result is a very simple equation—with death, possibly, as the solution.

Commercially—for practically all automobile racing the world over is commercial—track racing has always seemed to us a failure. The public has long since associated winning with special construction, and does not see in phenomenal speed on boulevard surfaces any close relation to reliability on common roads, and American roads at that. Road racing is a measure of all 'round value that track racing could never become, and development in this direction would be a beneficial growth out of the debris of the purely adventitious system of racing on horse-trotting tracks.

✷

A Needless Fatality.

The untimely death of Vinson Walsh, a schoolboy, at Newport last week, adds another name to the growing list of fatalities among drivers of pleasure cars, which is steadily creating an unfavorable public sentiment, and which, if not checked, will probably lead to drastic legislation. The saddest phase of this latest fatality, which was accompanied by serious physical injury and nervous shock to other occupants of the car, is its entirely unnecessary and preventable cause. Untimely death coming to a loved one in the hour of duty or in spite of all the resources of modern medicine in an unavoidable sickness is an awful calamity that even the most profound religious belief fails to reconcile, and when a death occurs the responsibility for which rests largely with those who are spared the resultant anguish is too great for contemplation.

According to the most reliable reports, the youth who was killed had a mania for speeding that was aided, not checked, by his family, which allowed him the possession of a powerful car as a plaything—a car that was possessed of potential energy equivalent to the effort which would be expended in raising a weight of 660 tons one foot in one minute. Armed with this instrument of destruction, he rushed violently to his death, and put in dire peril the lives of those who rode with him, and who might have exercised a restraining influence upon the rash youth.

A driver can display homicidal tendencies with a powerful car just as another person may with a gun or a knife—yet who would place such weapons within reach of a person so afflicted?

It is not clear that the authorities in Newport are without blame in this matter. By their own admission, the youth had persistently disregarded the speed regulations, and for him a fine had no terrors. The law of Rhode Island gives the authorities the option to impose a jail sentence on conviction. To a youth of the social standing of Vinson Walsh the warning that a few days of reflection within a prison's walls would be the penalty for a continuation of his practises would undoubtedly have been sufficient to cause him to hesitate and apply reason in the use of his machine on the public roads.

Leniency is certainly no kindness in such cases, and upon parents and guardians and officials sworn to enforce the law there rests the responsibility of example and direct control that cannot be shirked.

✷

Durability of Attachments.

In all things pertaining to the automobile it has been learned by experience that in the beginning the various parts and fittings were not made heavy enough, or were not made of material strong enough to permit of reasonably light weight. The stresses set up in an automobile are severe almost beyond belief when traveling at high rates of speed over indifferent roads. Though less imperative, there is the same necessity for making attachments substantial as for building essential parts of the car strongly. Mud fenders, lamp brackets, running boards, cyclometers, horns, and all such fittings, must be so made that they can be attached firmly and so that they will not work loose.

One attachment that gives considerable trouble because sufficient care is not taken to fasten it on securely is the license number tag usually suspended from the rear axle. Many of these tags are mere metal plates having two holes punched near the upper corners, through which light wires are run and then twisted around the axle. Needless to say, the constant jolting soon breaks the wire or the holes break out, allowing the tag to drag on the ground suspended by one corner, or to be lost altogether, rendering the driver of the car liable to annoyance from policemen if not arrest and fine, though ignorant of any trespass of the law. While there are, of course, many well-made signs with proper means for suspending them, a very large proportion are defective.

Another attachment that experience has shown should be made of heavy and enduring material is the tire chain, used for preventing slippage of the wheels on muddy roads. Links of such chains have been known to wear completely through in a day's run by a heavy car over bad roads. And when the links have worn badly their sharp, jagged edges and ends gouge pieces of rubber out of the tires and wear large holes through the tread clear down to the canvas in one or two days' running. On a very heavy car a set of tire chains and a set of shoes can be utterly ruined in less than a week's time if the car is driven hard and the roads are bad.

It is evident, then, that the links of such tire chains should be made larger and thicker, and that the chains should be made of a good quality of steel and then hardened so that they will resist wear and pre-

serve their rounded form, which does not cut into the rubber tread of the tires

✱

Co-ordination of Contests.

Now that track racing is on the wane, there is a growing tendency toward the holding of "contests" of one sort or another on the part of clubs and promotors. While such contests are entirely praiseworthy and desirable, not only for the purpose of stimulating public interest in the automobile, but as a means of accumulating data which will benefit manufacturer and user, it is imperatively necessary that they shall be conducted in a scientific manner. Good intentions are a poor substitute for technical training and experience, disinterestedly applied in the search for scientific truths. And it is with this slender equipment of intention that some contests have been held in the past and doubtless others will be held in the future.

It is certainly as much a necessity that contests of a technical character shall be held under proper sanction and supervision as it is that race meets shall be regular, especially if the results are to be made public. The public, which includes the possible buyer, is not in a position to judge of the method or manner of conduct of such contests, and is apt to take results which may be highly empirical and misleading as gospel truth. There is now no properly qualified body which sanctions or supervises contests of a purely technical character. The American Automobile Association has control of racing with the consent of the governed, and is apparently the representative body to exercise a supervision in touring events. Yet entirely outside its jurisdiction lies a variety of contests of a more technical character, having for their object, in some cases, not a test of complete cars, but of the durability or efficiency of component parts.

There is certainly an immediate need of control in this broad field. In open competitions this can be exerted by manufacturers lending or withholding their aid, as the circumstances warrant, but they have no such safeguard in the case of private contests such as may now be organized by any club or promoter without restriction. The National Association of Automobile Manufacturers, which seems of late to have drifted into that condition famously described as "innocuous desuetude," could rightfully undertake supervision of such contests; or the Society of Automobile Engineers, which holds a technical position that would give it authority.

It is certainly a subject that will stand discussion among the interested parties with profit to themselves and great benefit to the industry. A proper co-ordination of contests, held under scientifically correct, if not uniform, regulations, would make for progress, which certainly will not follow in the wake of scattered and misdirected effort guided chiefly by good intentions.

AUTOMOBILISTS AT ROAD CONVENTION

Touring Competition in Connection with Annual Meeting of American Road Makers at Port Huron, Michigan, August 29, 30 and 31, to Promote Better Feeling Between Automobilists and Farmers.

Automobilists from all parts of the country have been invited to attend the annual convention of the American Road Makers, to be held at Port Huron, Mich., on August, 29, 30 and 31. This is the first time that an effort has been made to bring the users of automobiles and the farmers and others interested in the improvement of the wagon roads together at a good roads convention, and the plan for harmonizing these usually antagonistic elements is of interest.

Among the committees appointed in connection with the preliminary work of the convention, was an automobile good roads committee, of which George E. Miller, of Detroit, was made chairman. This committee outlined a plan for an automobile touring competition in connection with the meeting, whereby each competitor was to secure from the mayor of his city, the president of his village, or a justice of the peace, a certificate stating the hour of his departure for the convention, and then to drive to Port Huron so as to arrive August 29 or 30. The conditions require that the contestant must drive all the way under his own power, must not have violated any speed ordinance or law, must not have caused any runaway, collided with or run over any man or beast, and, in short, must have traveled in an unobjectionable way through the country. In making out the list of winners, the judges are to take into consideration the make and type of car used, age and experience of the contestant, size of machine, horsepower of engine, number of cylinders, nature of route traversed, distance covered, time consumed, condition of car upon arrival and number of persons carried.

Arrangements have been made for storing 500 automobiles in Port Huron and to serve a 1,000-plate banquet. The certificates borne by the automobilists will constitute their authority to attend the convention and the banquet and to participate in a four-hour boat ride on Lake Huron.

It is planned to give all of the delegates to the convention demonstration rides in autos over both good and bad roads, and, by thus bringing the farmers and law makers into fraternal relations with the automobilist, give each element a better understanding of the sentiments of the others.

The convention was called at Port Huron upon the request of Port Huron township, in which the first good road in Michigan is said to have been built. The request was supported by the state legislature, which by resolution asked the American Road Makers to accede to the request. The delegates will inspect this first good road, which is still in first-class condition, and will be given a practical demonstration in road building on a two-mile stretch of road now being built under the Michigan state reward road law.

Thousands of invitations to attend the convention have been sent out through the invitation committee, which is composed of well-known representatives of national and state highway bureaus and commissions, automobile organizations, farmers' granges, editors and others. Among the speakers who are expected to address the convention are:

Hon. James H. Macdonald, president of the American Road Makers and State Highway Commissioner for Connecticut; Hon. Fred M. Warner, governor of Michigan; Horatio S. Earle, State Highway Commissioner for Michigan; Provincial Highway Commissioner A. W. Campbell, of Toronto, Canada; Col. Albert A. Pope, president of the New York and Chicago Road Association; W. L. Dickinson, secretary American Road Makers and 2nd vice-pres. New York and Chicago Road Assn.; Hon. George B. Horton, Master of the Michigan State Grange; Hon. A. N. Johnson, of the Office of Road Inquiry at Washington; Hon. W. L. Spoon, of North Carolina; Isaac B. Potter, president of the American Motor League; C. B. Cook, president of the Michigan Association of Farmers' Clubs, and Hon. DeWitt W. Smith, chairman of the Illinois Good Roads Commission.

ILLUMINATED AUTO PARADE.

Thousands Witness Dazzling Procession of Buffalo Automobile Club.

Special Correspondence.

BUFFALO, N. Y., Aug. 19.—It was a pretty spectacle which attracted large crowds to Buffalo's street curbs last Thursday night. The public then witnessed the first illuminated parade of the Automobile Club of Buffalo. With a score or more of prettily decorated automobiles, and several more score of others in line, the parade made the run from the clubrooms at Main and Edward streets down Main street to the Terrace and back again out Main street to Athletic Park, a pleasure resort.

The procession was led by a band in a big decorated automobile truck. President A. H. Knoll, of the A. C. of B., rode at the head of the division of decorated machines. The dazzling effects of flowers, lanterns, electric lights, bunting and foliage with which machines were profusely adorned was appreciated by the crowd, which broke into frequent cheers as one after another of the cars dashed by.

After reaching Athletic Park, the machines were lined up two abreast, the line extending half way around the broad granolithic walk which circles the park inside. Several thousand persons had assembled in the park to witness this first illuminated parade. When the cars had been lined up, judges who were unknown to the automobile owners commenced their work to select the best decorated car, so that the prize offered by the management of the park might be awarded. They had a difficult task, but after going over the line several times, they selected the car of Albert Poppenberg, a Rambler, carrying several ladies in white, with Mr. Poppenberg at the wheel.

Over Mr. Poppenberg's car was arranged a canopy of artificial white roses, while on the hood were a number of white pigeons, to the necks of which white ribbons extended from the front of the canopy top. As the winner was announced the crowd in the grandstand applauded heartily.

Percy Pierce's car was highly commended. A feature of the car's decoration was the Glidden Touring Trophy, recently won by Mr. Pierce. The car was decked in electric lights and bunting.

While the judges were busy looking over the cars the automobilists were out around the park taking in the many attractions, and a general good time was had.

Automobile fashions have assumed an importance that adds greatly to the responsibility resting on those who design garments.

NON-STOP TEST AND ECONOMY RUN.

Three Cars Start in Six-Day Contest on Jersey Coast Boulevard Between Seabright and Sea Girt.--Start of Four Maxwell Cars in Tire Test Delayed.

Special Correspondence.

LONG BRANCH, Aug. 21.—The Frayer-Miller car is leading to-night in the six-day non-stop economy test in which three cars started at nine minutes after midnight this morning. After twenty-one hours the Frayer-Miller had completed thirteen round trips over the twenty-mile stretch of ocean boulevard between Seabright and Sea Girt, making a total of 520 miles. The Corbin car had completed eleven round trips, and was ten miles on the twelfth, and the Wayne had made nine round trips.

The Frayer-Miller had led from the start until about 7 A. M., when in rounding a sharp, sandy turn a wheel gave way and the Corbin car, which had been running steadily, took the lead at 200 miles. The Wayne broke a cam-shaft roller shortly after the start, and lost three-quarters of an hour in making repairs. Later in the morning the Corbin had a puncture and lost first place.

The start was watched by about 100 persons. Two tents erected at the starting point protect the supplies and afford sleeping quarters for the watchers when off duty. There are checkers at each end of the course, and an official observer rides on each of the three cars in the contest.

The percentage basis on which the results are to be determined are 50 per cent. for a non-stop run, 25 per cent. for mileage, and 25 per cent. for fuel economy.

Following are the descriptions of the three competing cars:

Frayer-Miller, 16-horsepower touring car, four-cylinder engine, air cooled; weight, 1,875 pounds; fitted with Continental tires. List price, $2,500. Entered by F. E. Moscovics. Drivers, Lee Frayer and F. E. Moscovics; mechanicians, J. Howard and H. Crosby.

Corbin, 16-horsepower touring car, four-cylinder, air-cooled engine; weight, 2,000 pounds; fitted with Fisk tires on the front wheels and Dunlop antiskid tires on the rear wheels. List price, $2,000. Drivers, L. Markel and J. A. Dower.

Wayne, 20-horsepower touring car, two-cylinder engine, water cooled; weight, 1,600 pounds; fitted with Fisk tires. Listed at $1,250. Entered by Wayne Automobile Co., of New York. Drivers, A. L. Kull, D. D. Holmes and W. Rickey; mechanicians, W. Mandelove and G. C. Lewis

LONG BRANCH CARNIVAL RACE.

Special Correspondence.

LONG BRANCH, Aug. 19.—The automobile carnival which was to have begun here on Friday, opened to-day with races on the Elkwood Park mile trotting track, yesterday's events having been postponed owing to the wet condition of the track as a result of heavy rains during the week. The racing was very tame and uninteresting, there being few entries and most of the events being won in a walkover. No regular racing cars or very powerful touring machines were present. All told there were not more than 500 spectators present, although the weather was magnificent, and the track well rolled and free from dust. Considering the attendance, there was a large showing of touring cars present, thirty being packed in front of the diminutive grandstand.

The races were to start at 2.30 P. M., but as the printer did not get around with the programs, the start was postponed until 3 o'clock, and it was not until half an hour later that the programs arrived.

The conduct of the races was in experienced hands, yet it was impossible to inject much life into them. Chairman Morrell, of the racing board, acted as honorary referee; A. R. Pardington, ex-chairman of the board, as referee; Charles H. Hyde, Frank A. Burrell and Frederick Lewisohn as judges; A. B. Tucker as clerk of the course; Arthur A. Zimmerman as starter; C. R. Zacharias as announcer, and W. J. Morgan as a sort of general manager and information bureau.

The best races of the afternooon were the one-mile free-for-all, best two in three heats, for two-cylinder cars, and the four-mile handicap. Both were walkovers, however, a 20-horsepower Buick, driven by O. W. Ward, winning the former easily in two straight heats, and J. D. Maxwell capturing the handicap by a full lap with a Maxwell in 5:33, with a handicap of 1:45, easily holding his own with the Buick, which started from scratch.

The five-mile pick-up race offered some amusement, and was won by A. L. Kull in a 15-horsepower Wayne in 12:29 1-5.

The races that were scheduled for to-day will be run next Tuesday. Following are the summaries of to-day's events:

Five-mile motorcycle handicap—J. P. Bruyere, 5-horsepower Curtis (scratch), first; R. A. Bonner, 1 3-4-horsepower Indian, second; F. H. Van Dorne, 1 3-4-horsepower Indian, third. Time, 6:52.

One-mile exhibition by 40-horsepower Pipe car.—Time, 7:12.

One-mile exhibition by Frayer-Miller car.—Time, 1:34 2-5.

One-mile, best two in three heats, free-for-all for two-cylinder cars.—First heat, O. W. Ward, 20-horsepower Buick, first; W. C. Hood, 16-horsepower Rambler, second; F. W. Leland, 12-horsepower Stevens-Duryea, third. Time, 1:30.

Second heat, O. W. Ward, 20-horsepower Buick, first; F. W. Leland, 12-horsepower Stevens-Duryea, second; W. C. Hood, 15-horsepower Rambler, third. Time, 1:57 2-5.

Three-mile free-for-all.—O. W. Ward, 20-horsepower Buick, first; J. Heller, 40-horsepower Pipe, second; G. B. Demerest, 15-horsepower Locomobile, third. Time, 4:04 1-5.

Four-mile handicap.—J. D. Maxwell, 8-horsepower Maxwell (1:45), first; G. B. Demerest, 15-horsepower Locomobile (1 min.), second; J. Heller, 40-horsepower Pipe (30 sec.), third; O. W. Ward, 20-horsepower Buick (scratch), fourth. Time, 5:33.

Five-mile pick-up race.—A. L. Kull, 15-horsepower Wayne, first; Leon Cubberly, 10-horsepower Autocar, second; D. D. Holmes, 15-horsepower Wayne, third. Time, 12:12:29 1-5.

MURDER MYSTERY NOT YET CLEARED.

Special Correspondence.

CHICAGO, Aug. 21.—The automobile murder mystery of last November 19, when young William Bate, a chauffeur, was found dead in an automobile near Lemont, Ill., does not seem to be any nearer its solution, despite the fact that a man named Bennett Marsh, who answers the murderer's description in some regards, has been arrested in Brockton, Mass.

The person arrested was in Chicago before and after the murder (which was supposed to have been committed by a man who gave the name of "Mr. Dove"), and he has not been able to answer several questions which have been put to him by detectives sent to Brockton from Chicago. He is unable to tell where he was after midnight on the day of the murder, and also on other days following. The two witnesses sent from Chicago to confront the arrested man failed to identify him as the mysterious "Mr. Dove." Not only did they fail to identify the suspected man, but they also refused to say that Marsh was not the "Mr. Dove" they saw on the night of the murder. Marsh will be retained in prison for a few days longer until he has been further examined.

MIDNIGHT START OF THE SIX-DAY NON-STOP ECONOMY CONTEST AT LONG BRANCH, PHOTOGRAPHED BY FLASHLIGHT.

RACES AT READVILLE.

Labor Day Meeting Announced by Bay State Automobile Association.

Special Correspondence.

BOSTON, Aug. 19.—Nine events are announced in the entry blanks sent out to-day for the Labor Day race meeting of the Bay State Automobile Association to be held at the Readville track. These include the National Championship at five miles and two trophy races.

One of the trophy events is the third race for the Boston *Herald* trophy. When offered, a year ago last spring, this cup was won by H. L. Bowden. It was raced for at the Memorial Day meeting of the Bay State Association this year, and was won by Charles Gorndt with the Winton *Bullet*. This event is ten miles, free for all. The other trophy event is the five mile for two-cylinder gasoline stock cars for the Moxie Cup, which was won on Memorial Day by Hiram P. Maxim, with a Columbia. The entries close on Monday, August 28, with W. T. Helfer, 174 Columbus avenue, Boston.

The following is a list of the events:

Five miles for four-cylinder cars of not more than 40 horsepower, full touring condition.

Five miles for two-cylinder gasoline stock cars of not more than 24 horsepower, as per catalogue, tonneau attached. Mufflers may be detached.

Ten miles for gasoline cars of not more than 24 horsepower.

Ten miles, free-for-all, for Boston *Herald* trophy.

Ten miles for American stock cars, any weight, price or motive power.

Five miles, National Championship.

Five miles for gasoline cars from 551 to 851 pounds weight.

Five miles for gasoline cars from 851 to 1,432 pounds.

Five miles for gasoline cars from 1,432 to 2,204 pounds.

WAVERLY PARK MEETINGS.

New Jersey Automobile and Motor Club Planning Two Early Events.

Special Correspondence.

NEWARK, N. J., Aug. 19.—It was decided at a meeting of the board of governors of the New Jersey Automobile and Motor Club, on Thursday, to hold two race meets at Waverly Park track this season. The first race will be held the latter part of August, and the second meet is scheduled to take place about the middle of September. The exact dates will be announced later. B. M. Shanley, Jr., chairman of the race committee, will have charge of arrangements.

F. R. Pratt, former president of the club, was appointed a delegate to the convention to be held in Long Branch this week for the purpose of organizing a State automobile association.

NO MORE RACING IN BUFFALO.

Special Correspondence.

BUFFALO, N. Y., Aug. 21.—Automobile racing in Buffalo is doomed. The accident of Webb Jay at the Kenilworth race track has had a serious effect on the sport in Buffalo, and the thought of the accidents at Detroit and Cleveland have only served to make matters worse. There will be no more racing in this city. Augustus F. Knoll, president of the Buffalo Automobile Racing Association, said to a representative of THE AUTOMOBILE, personally, that he intended to resign as soon as the affairs of this meet had been wound up.

Charles Burman, one of the well-known drivers, has announced that he will ride no more in auto races, and that the Buffalo meet was enough for him.

"It's like taking blood-money," said President Knoll, in referring to the receipts. "I am through with the racing game. These accidents of late are too much. We can't sacrifice human life for pleasure. I quit."

MEGARGEL OFF FOR PACIFIC.

Starting on the first round trip ever attempted from the Atlantic to the Pacific coasts, Percy F. Megargel, accompanied by David Fassett, left Herald square, New York City, about daybreak last Saturday morning in his *Reo Mountaineer*, the 16-horsepower Reo touring car with which he expects to complete the journey. The route west will take the tourists through Albany, Buffalo, Cleveland and Chicago. From this point the exact route will be given later. It is expected that four months will be consumed in completing the round trip.

PERCY F. MEGARGEL AT THE WHEEL OF THE REO "MOUNTAINEER."

PROPOSED ECONOMY TEST.

A six-day's economy test for automobiles is being planned by the New York Motor Club, which proposes three return trip runs of two days' duration each out of New York City, one to Philadelphia, another to Albany and the third to Southampton, L. I., with night controls in each place alternating with similar controls in New York. In figuring the winners it is proposed to use a formula similar to that employed by the Long Island Automobile Club in its recent economy test, and in determining the cost per individual for the trips to take into consideration the size and cost of the car and the number of persons carried, as well as the fuel and lubricating oil consumed.

The strainer through which gasoline is passed should be of such fineness that water, when placed in it, will not pass through.

CINCINNATI AUTO RACES.

Large Crowd Witnesses Events Held at Hamilton County Fair.

Special Correspondence.

CINCINNATI, O., Aug. 19.—The automobile races held here yesterday on the Oakley track, in connection with the Hamilton County Fair, proved quite a success. The grandstand was well filled. It is estimated that about five thousand persons witnessed the events.

The only accident was that to J. H. Stricker in the third race. Stricker was driving an Oldsmobile skeleton, which he had altered himself. He had been handicapped fifteen seconds, but was rapidly overtaking the leader, when, as he turned into the home-stretch at the end of the third lap, the little racer headed straight for the outer fence and ploughed right through, despite Stricker's desperate efforts to get it straightened out. The car was wrecked, and Stricker received a painful cut over the left eye, but was not badly hurt.

The summaries follow:

One mile for runabouts of 8 horsepower or less—J. H. Stricker, Oldsmobile, 1st; Victor Emerson, Autocar, 2d. Time, 1:46.

Two miles for cars of 16 horsepower or less—J. H. Stricker, Oldsmobile, 1st; Victor Emerson, American Autocar, 2d; Sid Black, Franklin, 3d; C. H. Allen, Pope-Hartford, 4th. Time, 3:31.

The third race was called off on account of accident to Stricker.

Five-mile handicap for O'Dell cup—Gunther Brothers, Royal Tourist (scratch), 1st; Schacht Mfg. Co., Schacht (25 seconds), 2d. Time, 8:04.

KISER BENEFIT MEET AT DAYTON.

Special Correspondence.

DAYTON, Ohio, Aug. 21.—The largest gathering of noted automobile drivers will occur here next Saturday, August 26, for the Earl Kiser benefit meet. The racing men who will appear are Barney Oldfield, with the *Green Dragon*; Dan Canary, *Tor-*

nado; Carl Fisher, *Comet;* Louis Chevrolet, Fiat; Herbert Lytle, Pope-Toledo; Charles Burman, Peerless; Jerry Ellis, Apperson; Charles Soules, Pope-Toledo; Dan Wurges, *Reo Bird;* E. C. Bald, Columbia; Edward Soules, Pope-Toledo; Robert Jardine, Royal.

Walter Christie and the Cape May party are to come if they can make train connections in time. Friday night there will be a grand parade, 250 cars to be in line, headed by a band in the National Cash Register Company's motor truck.

Tickets have been sent to New York, Buffalo, Cleveland, Toledo, Columbus, Cincinnati, Indianapolis, Chicago, St. Paul and Minneapolis, and the demand is for more.

Poor Webb Jay will be missed, for he was well known in Dayton, and had many friends here.

All railroads and traction lines will run excursions at one fare for the round trip.

P. T. Hussey, of Cleveland, has charge of the races. The prizes are blue ribbons to the winners of each race.

AUTO BOAT CARNIVAL.

Features of Three-Day Meet on Hudson River, New York, in September.

An outline of the special features of the auto boat carnival to be held on the Hudson River, New York, September 14, 15 and 16, has been announced by Secretary H. S. Gambel of the National Association of Engine and Boat Manufacturers.

On Thursday, September 14, there will be races for cruisers and open launches, followed by speed boat races in the afternoon. On Friday a race will be run from New York to Poughkeepsie and return—a distance of about 145 miles—for which a special trophy will be given, and races for all classes will be run on Saturday.

A principal feature of the carnival will be the race for the International Trophy, the first ever offered for power boat races in this country. This trophy, as will be noted in the accompanying illustration, is vase-like in form and narrows to a neck at the base, where it is supported by four carved sea horses. Cables are twined about the handles and a propeller wheel is suspended within each handle, while on the front of the trophy in bold relief is a motor boat being driven at speed through the water. The cup is of silver, and the whole stands on an ebony base, set with silver tablets on which it is intended the names of the winners from year to year shall be inscribed. The trophy complete stands a little more than 24 inches in height and measures 17 1-2 inches from tip to tip across handles.

Other trophies of note will be competed for during the carnival, including the National and the Inter-state trophies.

All events will be started at a point in the river opposite Ninety-seventh street, New York, with the exception of the international race, which will be run over a triangular course of 6-1-2 miles.

IS TRACK RACING DOOMED?

Manufacturers and Clubmen Opposed to Track Contests as Now Conducted.

Special Correspondence.

CLEVELAND, Aug. 21.—With the general public the sentiment is expressed that automobile track racing must go, and it is very probable that legislation will be enacted not only by city authorities but by the State as well, prohibiting all forms of racing on circular tracks. But despite the series of accidents at Detroit, Cleveland and Buffalo, the race promoters and some of the manufacturers are unwilling to give up track racing entirely, believing that with certain modifications of rules it can be made reasonably safe.

E. Shriver Reese, president of the Cleveland Automobile Club, and a prominent manufacturer, says that he would not favor abandoning track racing. He thinks that if tracks were properly banked, the fences removed, and the tracks sprinkled so as to eliminate the dust, racing would be reasonably safe, but he does not favor any more races with special cars on present tracks. He thought that there might still be interest enough to warrant building special tracks in two or three centrally located cities.

L. H. Kittredge, general manager of the Peerless Motor Car Co., said he was not an enthusiast on any form of racing. He thought there was equally as much danger in straight-away races as in track races, and that if such races as the Vanderbilt or Gordon Bennett were repeated as frequently as track races there would be many more serious accidents than there are at present. Still, he would not say that the Peerless Company would discontinue the building of racing cars. He thought that if people continued to demand such racing cars they would be built. He is of the opinion that track racing with special cars will be apt to die out of itself, because even the best drivers are beginning to refuse to take chances.

International Challenge Trophy for World's Motor Boat Championship; Offered by National Association of Engine and Boat Manufacturers.

Walter White, of the White Sewing Machine Co., is of the opinion that there is less danger in handling racers on a straightaway course than on circular tracks. "If auto racing is to be continued on circular tracks it will be necessary for the tracks to be banked as they were for bicycles. The sport is a good advertisement for a car, but it fails to show the durability or endurance of a machine. They go at a high speed for a short distance, and that is all there is to it. I think if races are to be held, the Vanderbilt style of straightaway contests is the ideal one. If all tracks could be treated with oil and banked, there would be little chance for accident."

In an interview with Windsor White, of the White Sewing Machine Co., he stated unequivocally that his company was through with track racing with special-built cars. He would not say that the company would decline to enter any more road races, as the question of policy on this point had not been discussed. He thought it only a question of a short time before road racing would be abandoned entirely. The entry of the White Company for the Vanderbilt Cup race still stands, and Mr. White would not say that it would be withdrawn. Mr. White left Webb Jay's bedside late Sunday night, and stated that while the driver was still in a critical condition the physicians gave every encouragement that he would recover.

Councilmen A. H. Stanton and E. B. Haserodt have both announced that they will introduce ordinances prohibiting automobile racing on circular tracks in this city, while State Representatives B. J. Sawyer and E. Eubanks are slated to father bills prohibiting track racing in the State of Ohio. Mr. Sawyer will investigate the question of whether such a bill can legally be passed. The question hinges on whether or not a man can be prevented by law from putting his life in jeopardy in such races, and if he succeeds in solving the problem he will introduce the bill.

AIRSHIP IN NEW YORK.

Thousands Witness Successful Attempt to Navigate Air of Metropolis.

The first opportunity ever afforded New Yorkers to witness an airship in actual flight was given last Sunday afternoon when A. Roy Knabenshue, of Toledo, O., in his bullet-shaped vessel left his storage station at Sixty-second street and Central Park West, New York, and sailed down to Forty-second street and returned without serious mishap, alighting just within the bounds of Central Park at Columbus Circle.

Knabenshue's ship is 62 feet in length, 16 feet in diameter, and is composed of a huge gas bag made of silk, underneath which is suspended—secured by a network of twine or rope—a light spruce framework for the support of its operator and control mechanism. A propeller is placed at the front, contrary to the usual custom, and at the rear a large rudder is attached. The motive power is supplied by a 10-horsepower air-cooled gasoline motor. The vessel complete weighs but 200 pounds.

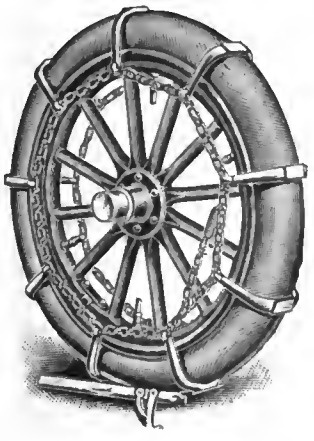
In the exhibition on Sunday the ship was driven down Broadway, circled about the Times Building at Broadway and Forty-second street, and executed a number of maneuvers at an altitude of about 1,500 feet. Knabenshue then headed his vessel for his storage station, and when within a short distance of his announced point of landing the chain connecting his propeller shaft was thrown off, and he was forced to take his chances with the air currents without the aid of his engine. Fortunately, however, he succeeded in alighting in Central Park just opposite his starting point, the latter being just across the street. In making the landing the ship came in contact with a tree, breaking a propeller blade, the only serious mishap experienced during the exhibition.

Entry blanks have been issued for an automobile race meet to be held at Paterson, N. J., on Saturday, September 9, under the auspices of the North Jersey Automobile Club. Seven events have been arranged, which provide for all classes of cars. Entries close September 4 with Robert Beattie, Jr., Secretary, Little Falls, N. J.

INFORMATION FOR BUYERS.

THE LAWNTANK.—A convenient outfit for the storage of gasoline has been brought out by the Tokheim Mfg. Co., of Cedar Rapids, Iowa, under the name of the "Lawntank." As the name indicates, the outfit is intended to be "planted" in the lawn or some other convenient spot in the grounds, away from buildings. It consists of a tank of heavy galvanized steel, painted with rust-proof paint. The longitudinal seams are double-riveted, and all joints are well soldered. The tank is buried in the ground, and from it a brass pipe two inches in diameter rises to the surface. The pump plunger works in this pipe; the valves are of brass and are of heavy construction. The brass pipe ends in a strong galvanized iron box, the top of which is level with the ground and is fitted with a cover; this box acts as a receptacle for the handle of the pump when not in use, and also as a terminal for the vent and filling pipe, which is a separate tube rising from the tank. When it is desired to fill the automobile tank, the cover on the iron box is raised, a hose connected to a nipple in the box, and the pump handle worked up and down; the pump is said to be capable of delivering five gallons a minute without difficulty. When the tank is full, the pump handle is pushed down as far as it will go, when the valves are automatically tripped and all the gasoline remaining in the hose and the tube is allowed to drain back into the underground tank. The cover of the box is secured by a lock, and so is secure from meddlers. The outfit is made in sizes to contain one, two or three barrels of gasoline.

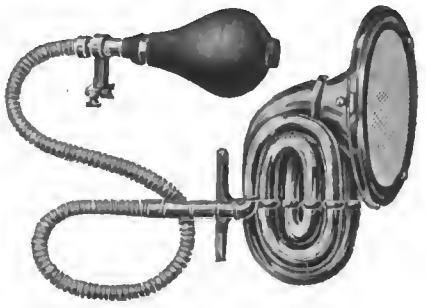
BURKE CLIMBER.—A new anti-skidding device that is easy to attach and detach and is so made as to cause no injury to the tires is manufactured by the J. C. Brown Mfg. Co., of Butler, Ind. The general appearance of the device is shown by the accompanying illustration. A series of



BURKE CLIMBER ATTACHED TO WHEEL.

U-shaped steel stirrups or clips are formed to fit the tire shoe loosely and are held in place by chains on either side. The ends of the stirrups hold the chains away from the rim and spokes, so that they will not mar the paint and varnish. The stirrups are made wide enough to allow the tire to expand sidewise when weight is brought to bear on the stirrup, thus causing the wheel to ride smoothly over hard roads or pavement. Each clip or stirrup is made half round so that it will not cut into and damage the tread of the tire. The device is attached by laying the climbers upon the ground and running the wheels upon them, then bringing the ends of the side chains together and drawing them tight with the special tool furnished with the set of climbers, which is shown on the ground beneath the wheel in the engraving. It is not necessary to deflate the tires, as they can be drawn to any desired tension by means of the tool. The stirrups gradually creep around the tires when the car is in motion, so that there is no constant chafing and wearing in spots. The climbers are made in sizes for 3, 3 1-2, 4 and 4 1-2 inch tires of 28, 30, 32 and 34 inches diameter.

BLANCHARD HORN.—The new French horn, with three convolutions, shown herewith, has been imported by the Motor Car Equipment Co., 55 Warren street, New



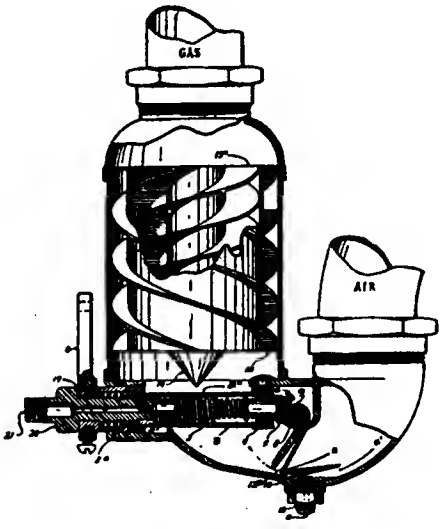
THE BLANCHARD HORN.

York City, and is being offered in the American market. The horn is known as the Blanchard, is made in large sizes and has a fine, deep resonant tone imparted by the extra convolution and the superior quality of the reed.

CYLINDER GRINDER.—So much depends upon the accuracy and smoothness of the finish imparted to the interior of explosion engine cylinders that manufacturers are, naturally, taking great pains to have this part of the work done as perfectly as possible. When properly done by correctly designed machinery, grinding is the best method of finishing cylinders and other parts requiring great accuracy. In this connection the new cylinder grinder recently brought out by the Heald Machine Co., of Worcester, Mass., is of interest, as it was designed especially for the work. The grinding spindle is horizontal and has two motions. First, it revolves at high speed on its own axis, carrying the grinding wheel around; then it revolves more slowly about an axis that is eccentric to its own axis, this motion being adjusted so as to cause the periphery of the grinding wheel to describe a circle equal to the desired diameter of the cylinder. The cylinder to be ground is bolted to a table or bed which slides back and forth, parallel to the axis of the grinding spindle, thus enabling the grinding wheel to reach all parts of the bore. A suitable power feed is fitted to the table, and will reverse automatically at any desired point. Eight changes of speed for the shaft are provided, so that cylinders of different sizes can be handled at the most advantageous speeds. A cross motion of the table makes it a simple matter to grind two cylinders in such a way that they will be truly parallel. Provision has been made for grinding either dry or wet, centrifugal pumps carrying water for the latter method, and channels in the bed carrying it away. The manufacturers suggest that a system of grinding cylinders while hot might produce work that would be more perfect than when cold ground, as the condition of the casting with regard to expansion would be more nearly like working conditions than when cold. The same concern also manufactures, and issues special catalogues for, a variety of grinding machines and attachments for finishing all kinds of work—grinding drills, reamers, milling cutters, centers, and so on. Many are driven by individual electric motors.

FORGINGS AND TOOLS.—A very sensible kind of catalogue from the point of view of the engineer and practical man has recently been issued by the Billings & Spencer Co., of Hartford, Conn. It contains detailed descriptions and good illustrations of automobile drop forgings, and also of a number of handy tools. The forgings consist of steering knuckles and connections, of both Elliott and Lemoine patterns, connecting pieces for same, cranks, rod ends, yokes and levers. Many of these may be had finished, ready for use. Wrenches, pliers and screw drivers of various kinds are also listed.

"IDEAL" CARBURETER.—A floatless automatic carbureter called the "Ideal" is being offered by Bowman & Morrison, 230 Washington street, Boston, Mass., for automobile, marine and stationary engines. Gasoline is admitted at the left and is checked by a needle valve normally held closed by a cam at its right end from which depends a plate valve closing the air intake. A coil spring around the needle shank opens the needle



"IDEAL" CARBURETER.

valve when the cam valve is partially opened by inrushing air. The incoming air passes through perforations in the chamber around the needle valve and takes up the gasoline as it is admitted. The mixture rushes against the cone above and is spread in all directions to enter the helical passages that form the mixing chamber. At the top of the dome the contents of the inner and outer passages commingle, and it is claimed that a gas is produced that is uniform in quality and free from non-evaporated or "raw" gasoline. Provision for making an extra rich mixture for starting the engine is made at the lowest part of the carbureter, where there is a hollow piece for receiving gasoline, a gasoline level regulator and a baffle plate. When starting, the carbureter is primed by an outward pull on the part *20* forming the fuel inlet duct, and the oil flows down and collects beneath the baffle plate. When the engine is turned over, part of the air admitted passes under the baffle plate and takes up the gasoline there, which is carried through the mixing chamber in the usual way.

NEW TRADE PUBLICATIONS.

Central Body Co., Connersville, Ind.—Circular illustrating different styles of bodies for automobiles.

Cortland Specialty Co., Cortland, N. Y.—Circulars relating to compounds for brazing and welding, and for preventing boiler scale.

Goulds Mfg. Co., Seneca Falls, N. Y.—Catalogue of hand and power air compressors and vacuum pumps.

Logan Construction Co., Chillicothe, O.—Circular illustrating various types of Logan cars; also separate engine and transmission gear.

Ora D. Shaw, 109 Kingston street, Boston, Mass.—Circular illustrating automobile caps of silk, cloth, leather and other suitable materials.

Rajah Auto Supply Co., 140 Washington street, New York.—Circular describing Rajah porcelain insulated spark plugs and Rajah terminal clips for attaching wires.

Wheeler Mfg. Co., 16 Baltimore avenue West, Detroit, Mich.—Large folder with illustrations, descriptions and prices of canopy tops for a number of standard cars.

National Cycle Mfg. Co., Bay City, Mich.—An interesting and well made little pamphlet illustrating a number of parts of gasoline motors, made from designs furnished by manufacturers.

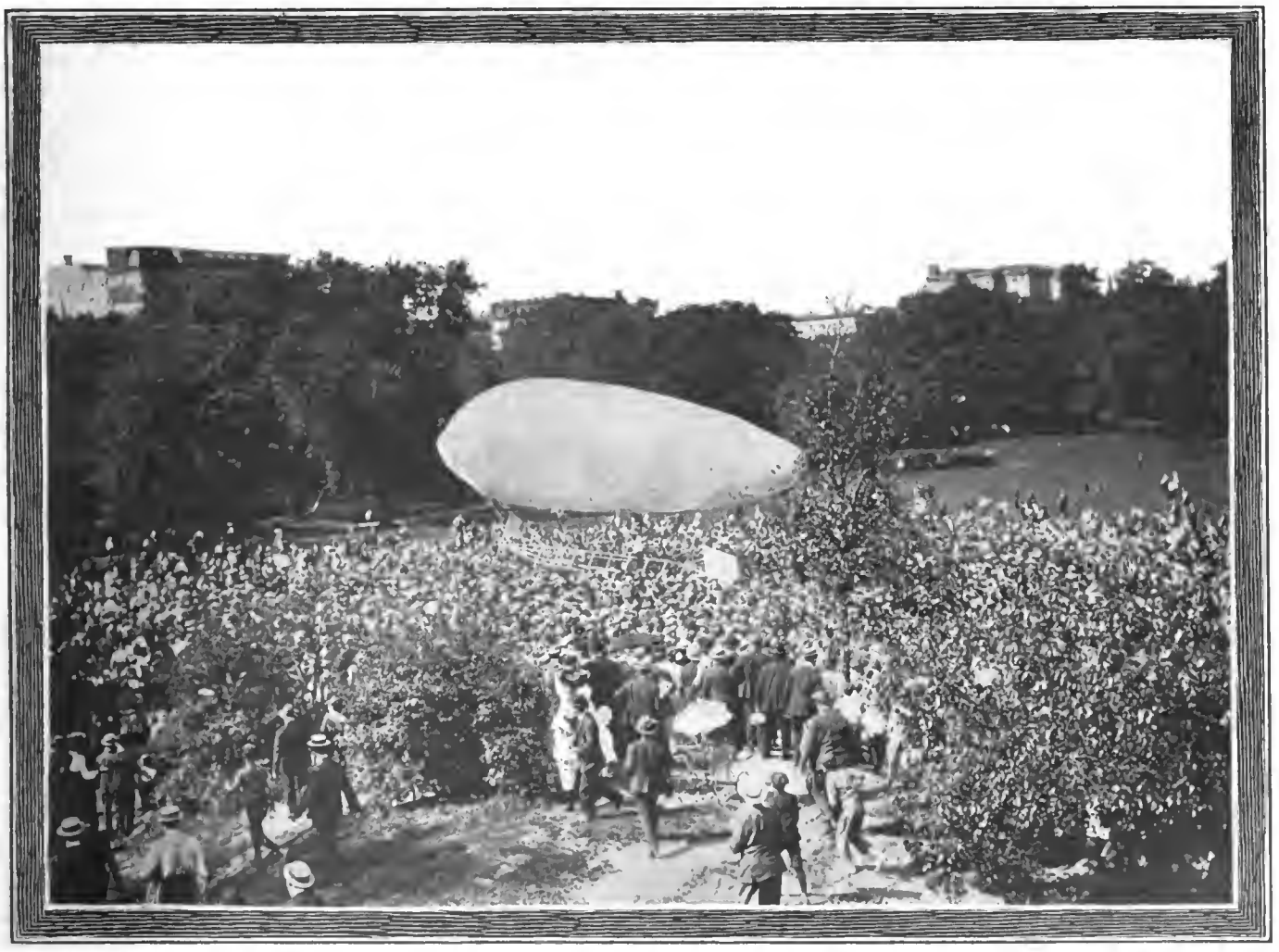
INDEX TO ADVERTISERS

THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, AUGUST 31, 1905—CHICAGO No. 9

A NEW FIELD FOR THE MOTOR BUILDER.

FROM automobiles to airships may be rather a long step, so far as practicality is concerned, and doubtless it will be some time before the first models of air-cars are offered for sale. Public interest, however, can be aroused by an airship more quickly, it would seem, than by almost any other mode of transportation. New York City saw a successful airship "voyage" on Wednesday, August 23, and for a time went mad on the subject of aerial navigation. Streets were blocked and the inhabitants fell all over themselves and each other in getting a view of the soaring machine. The flight was made by Roy Knabenshue in an airship of the Santos-Dumont type—a long, narrow, pointed balloon under which was slung a light framework, carrying a home-made, air-cooled gasoline motor which developed the power to turn the propellor, which was rigged in the "bow." The operator sat inside the framework and held in his hands the ropes for the manipulation of the rudder, which was hung at the "stern." When it was desired to cause the machine to point upward or downward when in flight, the aeronaut



ROY KNABENSHUE ALIGHTING IN CENTRAL PARK, NEW YORK, IN HIS DIRIGIBLE BALLOON AFTER A SUCCESSFUL FLIGHT.

Dirigible Balloon High Up in the Air Above the House Tops. Balloon Is in Upper Right Hand Corner of Photograph.

shifted his position forward or aft sufficiently to give the balloon the necessary tilt.

The ascent was made from a vacant lot at Sixty-second street and Central Park West. It was the intention of Knabenshue to sail to Twenty-third street, circle the Flatiron building, and return to a point near the starting place; but unexpected cross-currents in the air drove him toward the East River until he was over First avenue when Twenty-third street was reached. An elevation of nearly a mile was attained at this point. The return trip was made against a five or six mile breeze, and the machine was steered, with apparent ease, to an open space in Central Park, where it was landed gently on the grass. The time required to make the trip was approximately three-quarters of an hour. While in the air Knabenshue made his craft swing circles and go through other movements to show how completely it was in his control. It was noticed when the balloon returned that it had lost some of its buoyancy by the escape of gas from the big bag. This did not seem to interfere in any way with the return trip, however. The air-cooled motor worked well throughout the journey and gave the operator no trouble.

When making a fine adjustment with a nut and jamnut, it will usually be found that when the jamnut is tightened down the first nut will move forward slightly. This should be allowed for in making the adjustment.

British automobile journals are great at jumping at conclusions. One of them heard something about a rural freak who fired a shot from a revolver at the tires of an automobile, and at once printed a paragraph stating that the New York police had been ordered to puncture the tires of speeding automobiles with bullets.

The Story of a Quick Business Success in the Automobile Field.

SIX or seven years ago a young man on the Consolidated Exchange in New York who had some money to spend in amusement, conceived the idea that he could get a large measure of fun out of an automobile. He was not a mechanical man, and had not studied engineering, so he called to his aid in selecting a machine his brother-in-law, a young man who had attained his majority only a year or so before but who had given up a position with the New York Telephone Company to engage in the electrical contracting business on his own account. He was interested in mechanics and of course had a good knowledge of electrical work.

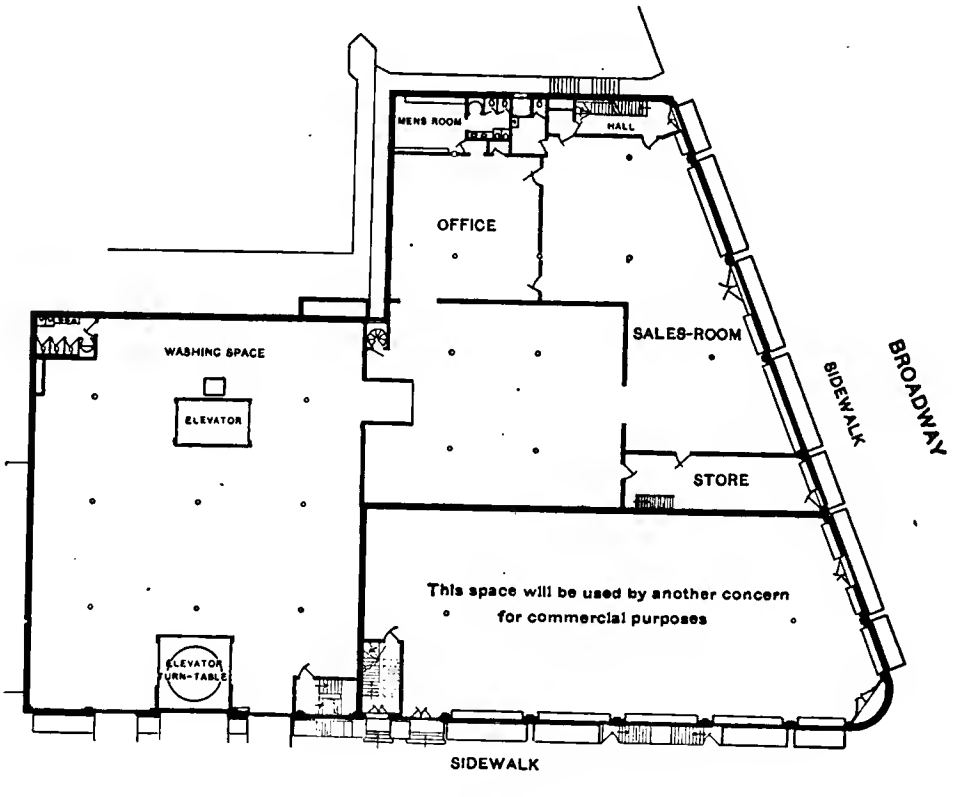
Together they considered one car and another—there were not many different makes in those days—and finally became especially interested in a 6-horsepower Panhard-Levassor. Careful examination of this French machine revealed the excellence of the material and workmanship in it, and the younger man recommended its purchase. So it was bought and it gave satisfaction.

Friends took note of it, watched its performance in use and then wanted to buy it. It was sold and another machine of the same make, but of 8 horsepower, took its place. The second car met the same fate as the first, but possession of the two machines had awakened a desire in both young men to learn why the French machines were better and so much higher priced than cars then made in this country, and what special conditions were responsible for the difference.

As the elder of the two wanted to get a new car to replace the last one sold, the younger one went to Paris to make a selection, as at that time no one was dealing in French cars in New York city. When he got there, he found that the manufacture and use of automobiles was already well established in the French capital, where the work of designing and building them was being undertaken as a serious engineering problem and that the best obtainable material and workmen were employed.

Several new cars were bought, and upon returning home arrangements were made to open an office for the sale and storage of foreign cars in New York, as, despite a widespread prejudice against foreign machines, it was believed that there were enough persons on this side who would want to buy and use the best cars the market afforded to make such an enterprise profitable.

Under the partnership name of Smith & Mabley, a small office was opened in the Automobile Exchange, on the north side of



GROUND PLAN OF THE NEW SMITH & MABLEY SALESROOM AND GARAGE IN NEW YORK.

Thirty-eighth street, between Broadway and Seventh avenue, and arrangements were made with the Exchange management for the storage and care of cars owned by their patrons. The elder member of the firm was A. D. Proctor Smith and the younger Clinton R. Mabley. Mr. Smith took charge of the outside work and the sales, while Mr. Mabley took care of the inside management.

The Automobile Exchange was then handling several American cars, such as the Winton and Stearns. It was about the only sales and storage station in the city, and its availability decided the location for the new firm—in fact, this was practically the beginning of the Thirty-eighth street "automobile row" that grew up later and all but monopolized the block on that street between Broadway and Seventh avenue.

That was five years ago. With the starting of the new enterprise an order was placed in Paris for a considerable number of cars to be delivered the following year, as the French firms were unable to promise deliveries any earlier. In a very short time it was seen that better facilities would be needed for properly taking care of customers' cars, and a bold move was made in leasing the old building on Seventh avenue near Thirty-eighth street that comprises part of the establishment now occupied. This building had a frontage of 50 feet on the avenue and a depth of 100 feet. When it was opened the firm had only four or five cars to put in it, and many among the trade thought the partners were rash to the point of lunacy in undertaking a burden of such magnitude for the sale and care of cars of foreign make exclusively. Predictions were freely made of an early failure and of the need of coming to other dealers to secure financial help.

The introduction of French cars into America was uphill work at first, according to Mr. Mabley. Everything seemed against them; the manufacturers and dealers, the trade papers and the majority of the public, could not be convinced that cars could be built any better abroad than at home, and it was the hardest kind of work to talk a $7,000 or $8,000 proposition to a man who was used to considering cars at $1,500. Nearly everybody was skeptical, but the few early buyers were well satisfied and not only bought new cars from time to time, but interested their friends and these became customers.

To the policy of giving complete satisfaction to their customers, even at an occasional loss to themselves, Mr. Mabley attributes in large measure the success of the firm. Other elements in its growth were the quality of the cars handled and extensive advertising. Old customers have been retained from the beginning, and some have bought as many as ten and twelve cars. As the best advertisement is a satisfied customer, it was obviously the best business policy to please patrons.

Prejudice against foreign machines finally wore away, as Americans going abroad began touring in automobiles and returned home with accounts of the pleasure enjoyed. At first very few ot the tourists brought their cars to America upon their return, owing to the heavy import duty, but later, when it was shown that foreign cars were adapted for use on American roads, they brought them in and began doing some touring in their own country.

BUILDING THAT IS SAID TO BE THE LARGEST AUTO SALESROOM IN THE WORLD.

The duty does not offer so much of a bar now as formerly, for a man who paid from $3,000 to $4,000 for a car was more likely to balk at paying an additional 45 per cent. than a man who bought a car costing $10,000 to $20,000, and the cost of machines has increased in proportion with the power of the engine. Most of the cars imported now are of 24 horsepower or more.

In the winter of 1901-2 the firm engaged space at the automobile show in Madison Square Garden and exhibited three Panhard cars, an 8, a 10 and a 12-horsepower. The 12-horsepower machine created great wonder, being looked upon as a monster machine for ordinary use. The show gave new impetus to the business and the new garage quickly filled up.

The repair department grew apace, and as new machinery was installed the partners began experimenting in the building of high-class cars after the French type. But it was impossible to get first-class mechanics who were capable of doing the work right, and even more difficult to get the proper materials.

Despite the difficulties encountered, from six to a dozen cars were completed during each of the succeeding three years. These were not offered to the public, but were kept by members of the firm for personal use and by others closely connected with the business to be tested, and it was not until last year that the first S. & M. Simplex cars were brought out publicly, and the Smith & Mabley Manufacturing Company was fully launched in a factory on the East side.

Meantime, the regular business of the firm continued to expand so that a little more than three years ago the partnership was reorganized into a stock company and the adjoining building on the corner of Seventh avenue and Thirty-eighth street was leased and remodeled into an up-to-date auto salesroom, as it stands to-day. Most of the stock was retained by Messrs. Smith & Mabley, and the other shares were taken by men working in the business with the principals.

Another year saw the storage limit of the establishment, even with the new addition, practically reached, and the company decided to increase its facilities again, and in such a way as to provide for the growth for years to come. This proved to be a harder matter than was anticipated.

Attempts were made to lease adjoining property that was used as lumber yards and livery stables, but it was impossible to do so, and as there was no plot of land on the block sufficiently large for the purpose, the company sought and finally found a location further up-town, on Broadway at the northwest corner of Fifty-sixth street.

The site, which has been occupied by a collection of decrepit old houses, was particularly advantageous for the business of the company, owing to its proximity to the best residential part of the city, to the park and transportation lines, the broad streets and lighter traffic.

The owners of the plot agreed to erect an immense building especially adapted for garage purposes, and Smith & Mabley, now incorporated, agreed to take a ten-year lease of the building, with option of renewal. Work was begun last spring, and now there is nearing completion there an automobile establishment which, it is said, will be not only the largest in New York City, but anywhere in the world, Paris not excepted. In another month it is expected that the com-

pany will be comfortably housed in its new quarters. The accompanying engraving from a photograph taken last Thursday shows the present stage of construction, and work is being rushed on the building inside and out.

Every feature of construction of the new building and its equipment that is suggested by years of experience in selling, storing and caring for automobiles of the most costly types has been employed or provided for. The construction is of expensive character, of fireproof materials, substantial and permanent. It is to be ornamental enough to be an improvement to the character of that part of Broadway in which it is located, and parts of the interior are to be attractively decorated and well furnished.

That a building of such size and character should be erected on a plot on the busy main thoroughfare of the largest city in the country, where frontage is so expensive, is indicative of the faith in the permanency of the business that is entertained by Smith & Mabley, with their intimate knowledge of the present status of it, and by the parties who are erecting the building for them.

Such rapid expansion of the retailing business as is shown by the need of a building of this size and character by one concern is in reality a better index of the growth and stability of the automobile business than is the enlargement of manufacturing plants, for the former represents the steady increase of the actual sales of cars and of their constant use by the owners. It is evident that money would not be invested in establishments of this character unless the financiers felt assured of the permanency and continued growth of the business, for a building designed and built for a garage is not adapted to use for other purposes, especially in such a location.

However, Smith & Mabley feel that they are not venturing upon any uncertain undertaking, but are simply keeping pace with the development of all modern forms of transportation and regard the expansion of their facilities only as a good business move. The seriousness of the problem of the storage and proper care of cars has increased with every additional car handled.

The new garage will be centrally located in a wealthy residential quarter of the city, close to the Boulevard and to Central Park, in the great hotel and theatre section, convenient to the underground, elevated and surface car lines, and within a few short blocks of the new home of the Automobile Club of America.

The new building is four stories in height, with a front of 160 feet on Broadway and 210 feet on Fifty-sixth street. It is of irregular shape, as the building line of Broadway meets that of Fifty-sixth street at an acute angle, and a large rectangle about 60 by 90 feet in the northwest corner is occupied by a corner of the Rutland Hotel. The part of the building that is directly on the corner, fronting on the two streets and cut off from the rest of the structure by fire walls, will not be occupied by Smith & Mabley, but will be used by another concern for commercial purposes.

The four floors of the part to be devoted to automobile purposes comprise 76,000 square feet. The street walls of the structure are of buff brick trimmed with terra cotta, with ample windows for lighting the interior. The floors are of concrete supported by iron columns and steel girders, making the entire construction fireproof. The offices and salesrooms are cut off by fire walls and fire doors from the garage proper, where machines are kept in "live" storage. As each of the four floors is to be used for the storage of cars, there will be accommodation for from 400 to 450 cars. Every detail of construction and equipment will comply with the regulations of the Board of Fire Underwriters and the City Bureau of Combustibles. Thus danger of fire will be reduced to the minimum and insurance premiums on building and machines kept as low as possible.

A novel but very simple device for simplifying the maneuvering of cars iuto position inside of the building is an original idea with the firm. It is a combination of elevator and turntable. The large car "lift," directly in front of the Fifty-sixth street entrance, is fitted with a turntable 17 feet in diameter, and on each of the floors there are three wire gates 8 feet wide opening from the elevator. A car can be run through the entrance onto the elevator, raised to any floor desired, then turned in any direction on the turntable before being rolled into its final resting place. This greatly lessens the liability to damage of the radiator, lamps and body by contact with other cars and pillars and also diminishes the time necessary to take a car into or out of the building. The elevator itself is 19 feet square, probably the largest in the city. As each floor is in effect a separate garage in itself, with individual washing stands, gasoline and compressed air supply, lockers, telephones and teleautograph service, a car will need very little shifting about after being brought into the building.

The plan of the main floor is shown in the accompanying line engraving. The upper floors are much the same in arrangement, except that the space occupied on the first floor by offices and salesrooms will be used in part by a chauffeurs' room, and stockrooms for parts and supplies and for patterns, jigs and tools. An exceptionally large and varied stock of extra parts for both foreign and domestic machines is carried by the firm, and with the assortment of patterns, tools, jigs and fixtures constantly kept on hand, it is possible to duplicate intricate parts of almost any description at short notice. The machine shop, of which this stockroom is an adjunct, will be located on the top floor over the Fifty-sixth street end, and will have a complete up-to-date equipment of machine and hand tools and every facility for executing difficult repairs. Owing to the high class of cars handled and the instructive value of working on them, the best class of mechanics is attracted to the shop.

As shown in the plan, entrance to the office of the establishment is on the Broadway front, at the extreme northeast corner of the building. This admits to a passenger elevator communicating with the upper floors and also by stairway to the rooms and shops on the upper floors. Opening off from the office are waiting rooms for men and women patrons, which will be well furnished. There will be ample provision for removing dust and grease after a long ride, the men's lavatory being fitted even with shower baths. There will be a separate waiting room for the chauffeurs on the second floor, and on the roof will be a sort of summer garden where they may spend idle moments in comfort on summer evenings.

The salesroom has a frontage on Broadway of 80 feet and a maximum width of 40 feet. The office, which is separated from it by a wood and glass partition, is 35 feet square. The storage room back of the salesroom and office is 50 feet square, and the garage proper has a length of 100 feet and is 80 feet wide. At the rear or north end of the garage are the washing stands, occupying a space about 18 by 60 feet. In front of this space is the rear freight elevator, measuring 10 by 17 feet, and directly back of it a tire sink for washing tires. To the left of the washing stands is a closed room with iron door where the gasoline is drawn for filling the tanks. Hot water as well as cold will be piped to the washing stands. One of the elevators gives access to the roof, so that cars may be taken out into the light for photographing or inspection.

There will be a storage department for electric vehicles, with the necessary charging facilities, and with men in charge who are familiar with storage batteries.

One of the garage floors will probably be reserved for the storage of cars owned by persons who do not employ chauffeurs. Here the owners will be able to tinker with their machines as much as they like, without the unpleasant feeling of being watched by "professional" mechanics.

The new establishment represents an investment of between $450,000 and $500,000 for the entire building, exclusive of the land. The company will employ from eighty to one hundred workmen. Thus has developed in a few years out of an almost insignificant beginning, an enterprise that requires the use of a capital of from $800,000 to $1,000,000 for the annual turnover, the sales of cars for the present year being estimated by Mr. Mabley at from 175 to 200, and the average price of the machines between $5,000 and $6,000.

A French dealer supplies paper garments for automobilists and others, the idea being borrowed from the Japanese. A special paper, very light and strong, is used, and can be purchased by the yard. Capes, socks, belts, knee caps and pajamas are among the articles made from paper.

Explanation of the Differential Gear.

THE precise action of a differential gear is a matter which many autoists honestly admit they do not clearly understand, but if the relative movements of the gear wheels are carefully followed it will be seen that the problem presents but little difficulty, says a writer in *The Autocar*.

At all events it is an interesting mechanism, and well worth a little investigation.

The main object of the differential or balance gear is to enable the driving wheels of the car to revolve at different speeds when it is not traveling in a direct straight line.

It is evident that if the car is moving in a circle the outer wheels are required to revolve faster than the inner ones, and in the case of the driving wheels must continue to transmit the power maintained by the engine. As the front wheels are quite independent of each other, the required difference of speed in their case is a natural automatic result.

All types of differentials now in use work automatically, enabling the wheel which meets the least resistance to travel faster than the other, and also transmit the greater portion of power available.

One of the disadvantages of this arrangement is that should one wheel be running on a slippery surface and the other on a dry, the former will transmit more power than the latter, the extra amount being wasted by the skidding of this wheel which meets the least resistance.

Fig. 1 shows a transverse section of a differential case as fitted to a car driven by propeller shaft.

A is the outer casing, B_1 and B_2 the two separate axles, to the outer ends of which the driving wheels of the car are fixed. *C* is the large bevel wheel, and *D* its pinion, which transmits the power from the cardan shaft to the back axles B_1 B_2.

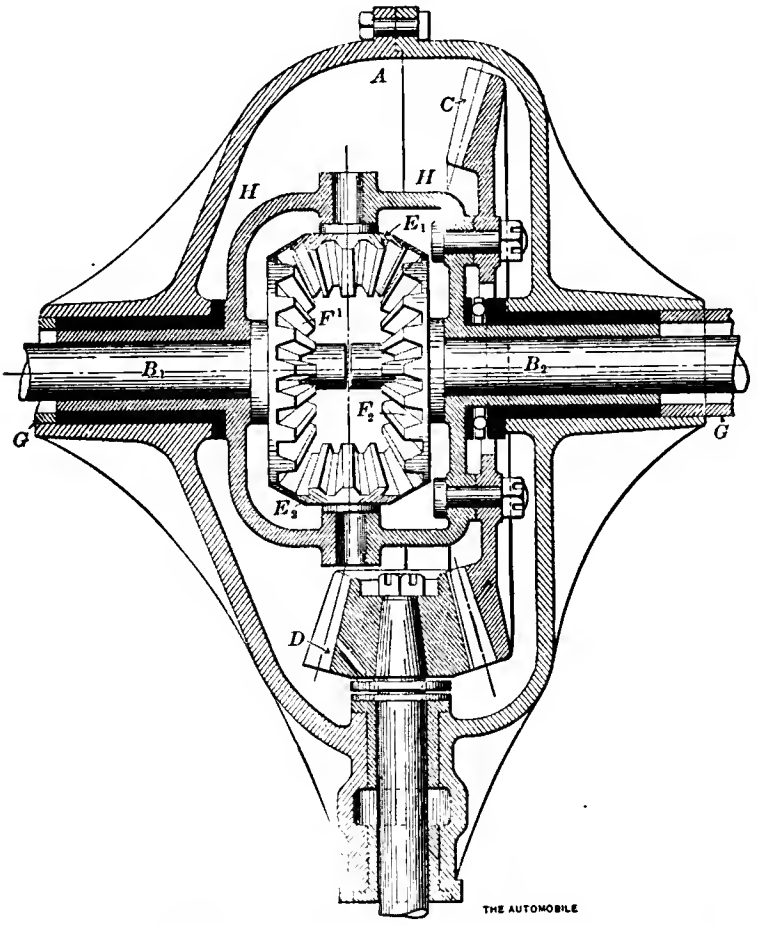


FIG. 1.—PLAN VIEW PARTLY IN SECTION OF BEVEL GEAR DIFFERENTIAL.

A, outer casing
B1, back axle
B2, back axle
C, large bevel
D, bevel, pinion
E1 E2, differential pinions
F1 F2, differential bevels
G G, sleeves forming axle
H H, differential case

H H are the casings of the actual differential box, made in two pieces and bolted together. This case is securely bolted to the large bevel wheel *C*, and moves round with it as a whole.

The sides of the differential case are extended to form bearings for the axles, as shown, since a certain amount of relative motion takes place between the case and the axles B_1 B_2.

Inside the differential case are four small bevel pinions (only two shown), E_1 E_2, mounted on spindles, and free to turn in bearings, which are part of the case *H*, as shown. These pinions are in gear with the two larger bevel wheels F_1 and F_2, the latter being fitted to the squared ends of the axles B_1 B_2.

One pinion would be sufficient to illustrate the working of the gear; four are fitted to minimize the stress to which the teeth of one would be subjected, as the power is transmitted through the teeth of these pinions. *G G* are the tubes forming the external axle sleeve to which the wheel springs are fitted.

Now, if the car is moving in a straight line with the wheel resistances equal, the drive is transmitted through the pinions E_1 E_2, etc., equally to the bevel wheels F_1 F_2, and no relative motion takes place between them, the whole mass revolving solidly with the differential case *H H* and the large bevel *C*, so that if *C* were fixed direct to one axle the resulting motion of the car would be the same.

But directly one road wheel meets a slightly greater resistance than the other, relative motion between the bevel gearing inside *H H* takes place, and one axle moves with a greater angular velocity than the other.

To follow these motions clearly, suppose the car to be standing with one back wheel jacked up and free to turn, the other wheel and axle being locked. Let B_1 be the fixed axle.

If now the large bevel wheel *C* (and with it the case *H H*) be turned through one revolution it will be found that the axle B_2 will complete two revolutions, irrespective of the ratio of E_1 to F_1.

For since the case *H H* has completed one turn the pinions E_1 E_2, etc., with their spindles have been moved bodily in a circle. Suppose these pinions were not in gear with F_1 (which is fixed), but were still in gear with F_2, but prevented from turning on their spindles, then for one revolution of *H H* B_2 would complete one revolution also.

But since the pinions are in gear with F_1 they are forced to turn on their spindles, and in so doing drive F_2 through one revolution. The two motions result in axle B_2 with its road wheel completing two revolutions when the other axle is fixed. In this way the respective velocities of the road wheels are automatically differentiated between the limits of an equal velocity (when meeting equal resistances), and a velocity twice as great as this when one wheel is not moving.

It should be noticed that when the pinions E_1, E_2, etc., are turned with case *H* through one revolution they complete n turns on their spindles (n being the ratio $\left(\frac{E_1}{F_1}\right)$ which drives F_2 through $\frac{n}{n}$, that is, one revolution.

Another prevailing type of differential gear is shown in Fig. 2, where spur wheels are used instead of bevel wheels. Fig. 3 shows an end view of the same, with one-half of case *H* removed.

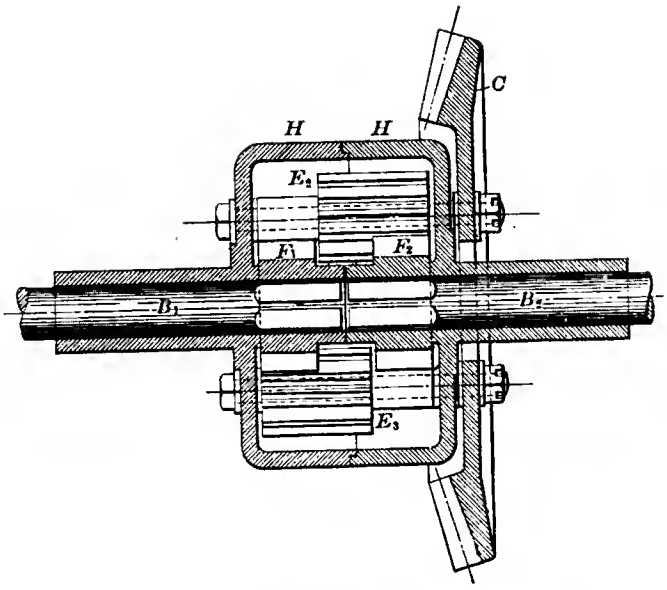


FIG. 2.—SECTION IN PLAN THROUGH SPUR GEAR DIFFERENTIAL CASING.

B1, back axle. B2, back axle. C, large bevel. E1 E2 E3 E4, star pinions.

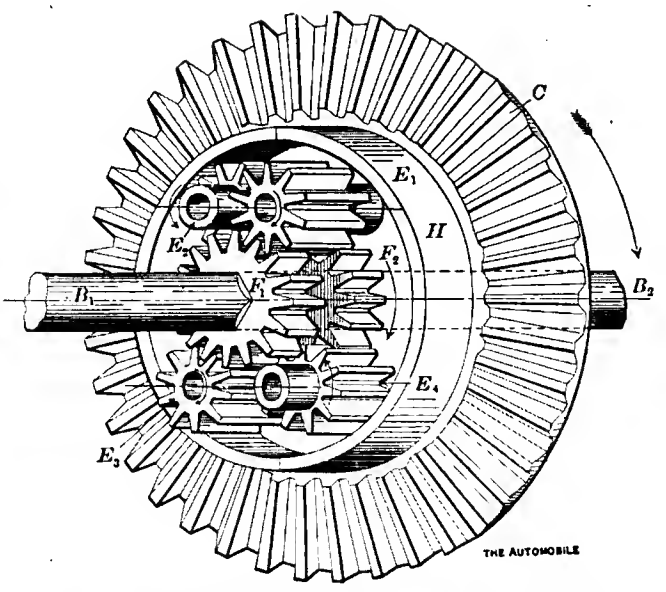


FIG. 3.—PERSPECTIVE VIEW OF THE SAME GEAR WITH THE DIFFERENTIAL CASING PARTLY REMOVED.

F1 F2, differential spur wheels. H H, differential case.

The arrangement consists of a modification of an epicyclic train of wheels, and its working is in every way analogous to the gear just described.

C is the large bevel wheel fixed, as before, to the differential case H H. F_1 and F_2 are spur wheels of equal diameter fixed to the squared ends of the two axles B_1 and B_2 respectively.

The four star pinions (of equal diameters) E_1 E_2 E_3 and E_4 are free to turn on their spindles, which are shown as the bolts holding the wheel C and the case H H together. The pinions are of smaller diameter than F_1 and F_2, but the faces of their teeth are longer than those of F_1 and F_2, allowing E_1 and E_2 to be in gear, while at the same time E_1 is in gear with F_1 only, and E_2 in gear with F_2 only.

Two pairs of pinions are usually fitted to this gearing, sometimes three, to insure greater strength.

One pair, however, is sufficient to follow the motion of the gear.

Suppose as before that B_1 and F_1 are fixed and B_2 with F_2 free to turn, and that the wheel C with the case H H are turned through one revolution. Let R be the ratio of the number of teeth in F_1 to the number of teeth in E_1 or E_2, which is always greater than one. The directions of the wheels are indicated in Fig. 3.

Since F_1 is fixed E_1 will roll round it, and E_1's motion relative to its spindle will be R revolutions. But E_1 has also been turned bodily in a circle, since its spindle is fixed to H H, which has completed one revolution. Therefore E_1 makes $1 + R$ revolutions in same direction as the wheel C, which we will call positive.

E_2 being in gear with E_1 and having the same number of teeth, will have turned R revolutions also, but in the opposite (negative) direction, but will also have moved bodily through one revolution in the positive direction, owing to its spindle being fixed to the case H H. The resultant motion of E_2 with respect to any fixed point in its plane of revolution is therefore $1-R$ turn. It is interesting to note that if E_1 and F_1 were of the same diameter, then R, being equal to 1, E_2 would not revolve at all, relative to earth, but describe one revolution relative to its spindle in a negative direction.

We now come finally to F_2, which is free to turn, and is in gear with E_2. We have seen that the latter makes R revolutions in a negative direction, and so drives F_2 $-\frac{R}{R}$ revolutions in a positive direction, viz., one positive turn.

But E_2 has also been moved bodily round in a circle in a positive direction. This motion also gives one complete turn to F_2, whose total movement is therefore two revolutions in a positive direction.

This result holds good whatever the value of R may be, since B_2 always makes $1 + \frac{R}{R}$ revolutions (which, of course, is equal to two) when B_1 is fixed.

It is evident that if both road wheels are jacked up and one is turned by hand, the other will turn with an equal velocity in the opposite direction, the wheel C and case H H remaining at rest.

When a chain-driven car is run with only one chain driving, it is, of course, necessary to lock the idle sprocket and its axle; otherwise the differential case will be driven round without transmitting any motion to the free axle.

Notwithstanding the low price of horses in Argentina, the employment of automobiles is continuously extending in the city of Buenos Ayres.

Megargel at Chicago.

Special Correspondence.

CHICAGO, Aug. 26.—The *Reo Mountaineer*, the 16-horsepower touring car in which Percy F. Megargel, of the Buffalo Automobile Club, and David Fassette, of Lansing, Mich., are making the double transcontinental automobile trip, arrived here at 6 o'clock to-night, escorted by several members of the C. A. C. The start was made from New York last Saturday morning, the *Reo Mountaineer* taking eight days in which to reach Chicago.

In speaking about his 1,000-mile trip, Mr. Megargel said:

"We have not had any trouble on the road from New York to Chicago, and with the exception of one rainy day the weather has been excellent. One thing in particular I have noticed on this my fourth automobile trip between New York and Chicago in two years, and that is the great increase in touring. Do you know that not a single day has passed in which we have not encountered at least a score of touring parties on the road or stopping for the night at some one of the wayside hotels? On former trips I have occasionally passed a lone tourist, or possibly passed two or three parties a week, but now you meet many every day.

From Chicago the route lies through Illinois, Iowa, Nebraska, Wyoming, Idaho and Oregon. On the return trip to the East the route will be through Oregon, California, Nevada, Colorado, Kansas, Missouri, Kentucky, West Virginia, Maryland, Delaware and New York. Mr. Megargel expects to leave Chicago Monday morning.

An automobile was the center of attraction on our streets recently. Mrs. Loader's niece from Junction City came up in it. One little boy yelled: "A thing going without a head."—*Clay Center Dispatch.*

The Atlas Gasoline Commercial Truck.

ONE of the most serious attempts yet made in America to build self-propelled gasoline commercial vehicles for heavy work, after careful scientific study of the problem, is represcnted in the first specimens of the product of the Knox Motor Truck Company, of Springfield, Mass., which has just begun to place its new vehicles in the market. Organized last December by Harry A. Knox for the sole purpose of manufacturing automobiles for business purposes, this new concern has built and equipped a new factory especially for the work and has constructed and tested several experimental trucks before feeling satisfied to stake its reputation on trucks delivered to customers.

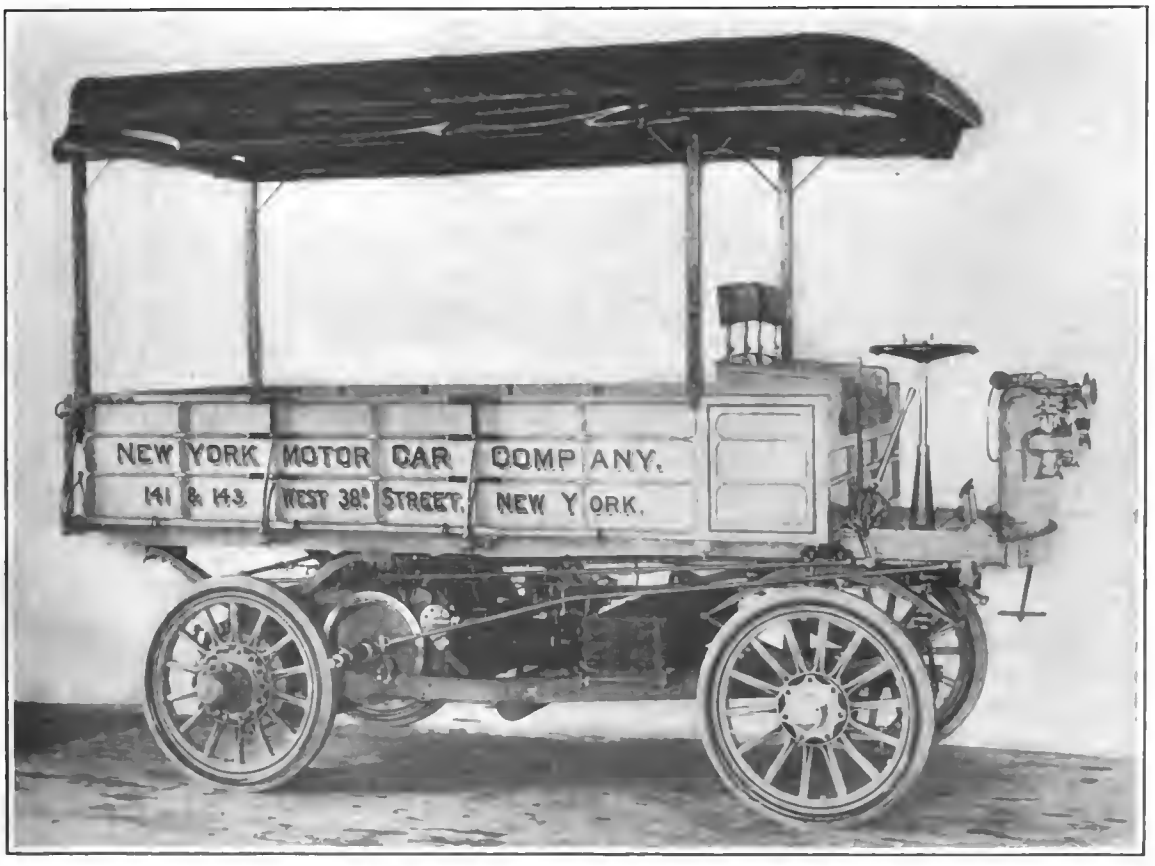
These first new trucks are called the Atlas, Model A, and are designated two-ton wagons; a larger model, to be known as Model B and designated a three-ton truck, is soon to follow, having the same power plant and transmission but larger running gear and body.

At the very start it was recognized that the construction of motor vehicles that would not only do heavy trucking successfully but do it economically year after year without incurring prohibitively heavy expenses for repairs and replacements, presented an altogether different problem from that of the pleasure automobile. Construction that was excellently suited for carrying four or five persons, weighing at most, with luggage, a scant 1,000 pounds, over good roads on large pneumatic tires, was ill adapted to withstand the severe service of transporting loads varying from a few pounds to 4,000 or 5,000 pounds on solid tires over all kinds of roads and paving in all sorts of weather. Strength of horse-drawn trucks built for equivalent loads was in no wise indicative, since forces and stresses set up by reaction when the wheels met obstructions at a speed rarely in excess of four miles an hour were multiplied many fold when the speed was doubled or tripled, and the horse presented a flexible factor in itself that absorbed shocks as if it were composed of a complicated system of springs, where the momentum of a heavy flywheel turned continuously by a necessarily very powerful engine presented a constant and practically irresistible force to drive the wheels undeviatingly and at undiminished speed over all inequalities and obstructions of the road surface.

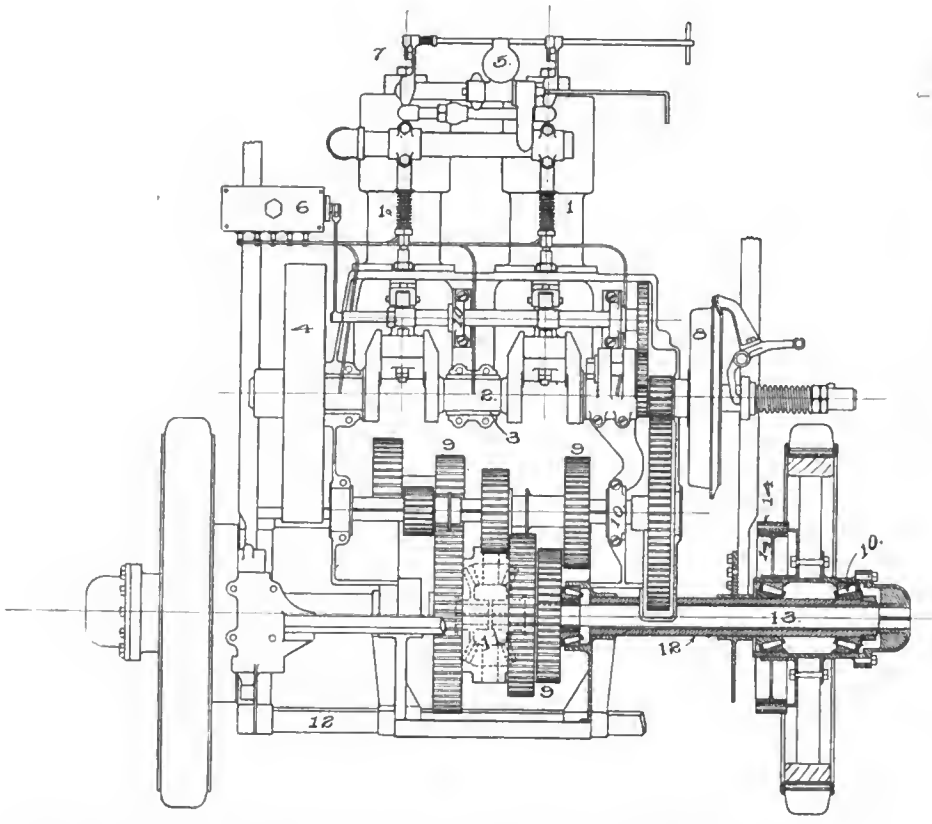
Therefore the problem was attacked along lines that dismissed the accepted practice in pleasure car building out of mind; frank acknowledgment was made that anything approaching high speed must be eschewed, and that lightness must be sacrificed to gain strength, simplicity, and a durability that would insure years of economical service. Harry Knox, president and general manager of the company, brought to the work the engineering and designing skill gained through several years of practical study and experience in the field of both pleasure and light commercial vehicle building, and features of construction were adopted that, while presenting nothing especially novel, are at least radical, and it almost seems in this day heretical as applied to automobiles. He has, however, logical reasons and arguments in defense of every feature.

Briefly, the constructional features that attract immediate attention are a running gear having a three-point suspension channel iron frame directly and rigidly fastened to the rear axle sleeves and attached to the front axle by a center bolt and vertical guides for the axle to move in; power plant and transmission mechanism carried rigidly on the underframe and rear axle; twin-cylinder horizontal explosion motor, water cooled; direct spur gear drive from the crankshaft through sliding gears to the compensating gear in the rear axle; transverse change-speed spur gearing in which the rear axle acts as the secondary shaft while the primary shaft occupies the position of the usual countershaft in a pleasure car; and drive by live axles to the outer cnds of the rear wheels.

How one so thoroughly identified with the air-cooling system as Mr. Knox was, came to adopt water cooling, is another and a very interesting story; it is sufficient here to state that he was most anxious to stick to cooling by air because of its simplicity, and

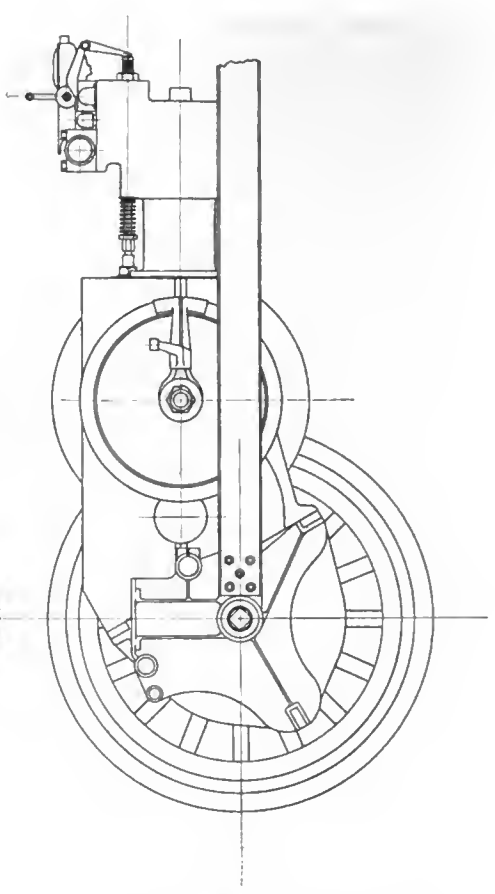


NEW ATLAS TWO-TON TRUCK, FITTED WITH 24-HORSEPOWER WATER-COOLED MOTOR, BUILT BY HARRY A. KNOX AT SPRINGFIELD, MASS., FOR HIS NEW YORK AGENCY.



PLAN, DRAWING PARTLY IN SECTION OF POWER PLANT AND TRANSMISSION OF ATLAS TRUCK.

1—Cylinders. 2—Crankshaft Bearings. 3—Crankshaft Bushings. 4—Flywheel. 5—Carbureter. 6—Mechanical Oiler. 7—Automatic Inlet Valves. 8—Cone Clutch. 9—Three-Speed Sliding Gear Transmission. 10, 10—Timken Roller Bearings in Rear Wheel, on Live Axle, Intermediate Shaft and Valve Cam Shaft. 11—Compensating Gears or Differential. 12, 12—Rear Axle Sleeve and Truss Frame. 13—Live Two-Part Driving Axle. 14—Internal Expanding and Double-Acting External Foot and Hand Brakes.



SIDE ELEVATION OF POWER PLANT AND TRANSMISSION, SET ON END FOR CONVENIENCE OF COMPARISON WITH PLAN VIEW.

that his previous success had been built up on that system; and the first experimental truck built by his new company was fitted with an air-cooled engine having "porcupine" cylinders studded with split pins—a form of air-cooled engine for which he had taken out a new patent. Failing to secure the hoped-for results from this vehicle, another truck was built identical in size and construction except that the cylinders were water jacketed and a circulation system was added. For two months these were tested side by side, doing the same work under the same conditions, and at the end of that period he had proved to his own satisfaction that the water-cooled engine was the more efficient, economical and durable for the large power necessary (24 horsepower) and the very heavy service required, notwithstanding the success of the air-cooled system in pleasure and commercial vehicles of less capacity.

Chains and bevel gears were abandoned for driving purposes and direct spur gear transmission adopted because long experience with chains proved similarly unsatisfactory, the links soon stretching so much under the enormous strains that they would not fit the sprockets and broke repeatedly. Taking a lesson from manufacturers of other heavy machinery, such as street cars, traction engines, machine tools and the like, in which wide spur gears are almost universally used where the heavy work is done, the engine shaft was made to drive by spur pinion to a large spur gear on the end of the primary change-speed shaft, as shown in the accompanying plan drawing, the ratio of reduction being about four to one.

The carrying of the power plant in a subframe directly attached to the axles looks like a return to a method tried and found wanting in the early days of pleasure vehicles on account of the damage done by the excessive vibration. But in the heavy commercial vehicle the conditions are very different; the truck must perforce move slowly and the vibration is consequently less rapid, plenty of metal can be used to render the parts strong and, finally and most important, the springs which support the body must be made so stiff and strong to carry loads up to 5,000 and 6,000 pounds that when the truck has no load—which is fully 50 per cent. of the time—the power and driving mechanism would get practically no cushioning effect from the springs, in fact the flexibility of the channel steel subframe gives as much as springs would. Every part of the mechanism, including not only the engine and its parts, but such attachments as the pump, the piping and the radiator, is built especially to withstand the vibration.

The general appearance of the complete vehicle, fitted with readily removable body and top, is shown in the accompanying halftone engraving from an excellent photograph that shows well all of the exposed parts. The wheelbase is 8 feet and the tread 56 inches, the merchandise space in the body measures 9 feet 3 inches by 5 feet, wheels are 36 inches in diameter, fitted with 4-inch solid tires. The wheels are mounted on large size Timken taper roller bearings, the bearing cages in the rear wheel hubs being fitted over the axle sleeve, as shown at 10 in the plan drawing. Roller bearings of the same make are fitted at the inner ends of the live axles, at the ends of the intermediate shaft and on the cam shaft. There is no brake on the transmission, but there are two sets of brakes acting on drums fitted on the inner ends of the hub and forming the inner spoke flanges. One set expands within the drums and the other contracts upon the outer surface, being operated respectively by a pedal on the footboard and a lever at operator's side.

Steering is by hand wheel mounted on a vertical pillar and operating through irreversible worm gearing and steering rod in front of the front axle. A 30-gallon gasoline tank is carried under the middle of the driver's double seat, while at the ends of the seat are small compartments with doors opening outward, the compartment on the righthand side containing a double set of batteries and the one on the left side being left to receive tools and other small articles.

Extending longitudinally under the footboard and seat is a large cylindrical water tank, from which the water is piped by hose

from the radiator and to the circulating pump. The location of the radiator, pump and the muffler is plainly shown in the photograph.

The cylinders of the engine are cast separately with heads, water jackets and ignition chambers integral and are bolted onto a large castiron crankcase open at the rear and with a removable plate on top. The cylinder dimensions are 6 inches bore by 7 inches stroke. Inlet valves are automatic, and a small rod extending across the heads of the two cylinders has pendant arms so arranged that by a movement of the hand when starting the engine their ends will press against the valve stems and relieve the compression. Removal of one nut permits the valves to be taken out. An automatic float-feed carbureter of the company's own manufacture, located just above and between the cylinder heads, supplies the gas mixture.

The exhaust valves are opened by a camshaft driven by spur gears from the crankshaft inside of the crankcase, and the five-feed mechanical oiler, *6*, is operated by a rod from the left end of the same camshaft. Two of the oil feeds lead to the cylinders and the three others to the crankshaft bearings. From these places the oil makes its way to the bottom of the crank and gear case so that the wrist pins are splash lubricated and the gears constantly run in oil.

The crankshaft, which is turned from solid stock, has main bearings 3 inches in diameter by 5 inches long and has both crank throws on the same side. The bearings are bushed with hard babbitt metal. At the left end of the shaft there is carried a 200-pound flywheel, *4*, and at the other end a reversed leather-faced cone clutch, *8*, whose inner or female member carries the spur driving pinion on a sleeve. A novel feature in connection with the clutch mechanism is an extra arm on the lever for releasing the clutch, whose purpose is to act as a stop for the change gears when the clutch is released, a foot at the end of the arm pressing against the aluminum flange of the inner clutch member. The extreme right end of the crankshaft receives the starting crank.

A truss frame built up of four three-legged spiders cast from 5 per cent. nickel steel and held together by three transverse rectangular bars, *12*, carries the tremendous load of the machinery and the contents of the body. Between the inner pair of spiders the bevel-gear differential, *11*, is located and the three secondary change-speed gears, *9*, the change gears being bolted directly to the differential. A steel casing bolted to the two spiders closes in the gearing at the bottom and rear, and the open front abuts against and is bolted to the open side of the crank casing previously mentioned, thus forming an entirely closed compartment to protect the whole transmission system.

Steel sleeves 4 inches in outside diameter and of a wall thickness of 3-4 of an inch extend from the centers of the inner spiders through the outer spiders and receive the driving wheels and their roller bearings. Live axles squared at their outer ends fit into square holes in the heavy hub caps, by which the propulsive force is transmitted to the wheel hubs from the outer ends.

Referring once more to the change-speed mechanism, the gears, as will be seen, are of large diameter and have 2 1-2 to 3 inch faces and four pitch. They are cast from machine steel and machined all over. They give three speeds forward and reverse. The high gives a maximum of fourteen miles an hour. The sliding gears on the primary or forward squared shaft are moved by bell-crank levers operated through rods visible in the photograph from a single shift lever. A second side lever is dispensed with by a simple but ingenious device. The quadrant has an H slot. The shift handle is pivoted on a yoke on the journal so that it can be moved sidewise without springing the metal. Just above the quadrant is an eye in the handle. Short lever arms connected with the two shift rods normally are held opposite the transverse slot in the quadrant by springs. Each lever has a stud extending inwardly. When the handle is moved sidewise through the slot one or other of the studs, as desired, engages in the eye of the handle and the short lever and the long handle are interlocked and move either forward or back as one piece. Because of their slow movement the gears mesh and disengage easily.

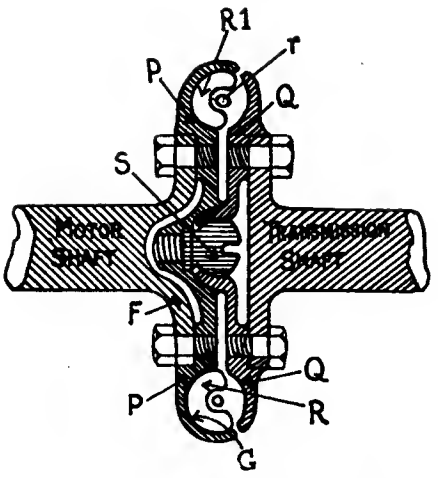
Throttle and spark levers are on top of the steering wheel where they are most accessible. One of the pedals operates the clutch and the other the regular brakes. The emergency brakes are set by the long side lever, which also simultaneously releases the clutch.

One of these trucks made a trip between Springfield and Boston on August 12 with a load of 5,000 pounds and four persons in an actual running time of 10 hours 19 minutes for the 99 miles, or 11 hours 30 minutes elapsed time, including a stop for luncheon. The only stop occasioned on the way by mechanical troubles was one of two minutes, caused by a loosened battery connection.

A similar run from Springfield to New York is being made this week to deliver the truck shown in the photograph to the New York agents. A two-ton load is being carried.

C. G. V. Elastic Coupling.

A spring coupling is placed between the engine and the change-speed gear box of the C. G. V. cars for the purpose of absorbing any intermittent thrusts that might be set up by the impulse of the car when driving over rough roads, and in heavy traffic, where uneven driving is necessary. Other objects of the device are to make the car smoother in starting, to lengthen the life of the mechanism and tires, and to make the cars more comfortable for the passengers. The coupling also acts to some extent as a universal joint, taking up any torsional stresses that might exist in the chassis either



[VERTICAL SECTION OF C. G. V. ELASTIC COUPLING.

temporarily or permanently, thus preventing the binding of shafts and prolonging the life of the bearings.

The clutch shaft, which receives its motion from the engine when the clutch is engaged, ends in a cupped flange *F*, formed by forging and turning to shape. On this flange is bolted a cast steel circular member, shown in section at *P*. This is machined all over, except inside the groove *G*, which follows the outer edge or rim of the member *P*. Symmetrically disposed in this groove, and cast integral with it, are four partitions or ribs of the shape shown at *R*, *R1*.

A very similar cast steel member *Q*, also carrying four such ribs, not shown, is bolted on the end of the primary shaft of the gear box, which is also forged and machined to the desired shape. A ball-head screw *S* is screwed and pinned in the casting *P* through the rearward end of *Q* and unites the two members with sufficient play to allow relative movement of the two castings, whose meeting surfaces under the screw head are suitably machined. This articulation is kept well lubricated by a screw-down grease cup, not shown. The ball-head screw does not transmit any of the driving effort, its function being only to keep the shafts in line and give them a bearing on each other.

A wire ring *r* is placed in the center of the cylindrical annular space formed by the two grooves in the steel castings. This ring is merely a retainer for eight coil springs that are interposed between the different ribs of the castings, so that the driving effort passes from the ribs of *P* through four of the coil springs, which are progressively deflected, to the ribs of *Q*, thus transmitting the effort from one shaft to the other.

It is evident that when assembling the coupling the two castings are so arranged that the ribs of one alternate with those of the other.

If the front tires of the car are wearing more rapidly than they should, see if the wheels are parallel. The least departure from parallelism causes a certain amount of sliding friction between the tires and the road, with disastrous results.

Herkomer and Bleichroder Races in Bavaria.

From Our Own Correspondent.

MUNICH, Bavaria, Aug. 14.—The Herkomer competition is a great success. More than 83 out of 105 cars entered were present at the beginning of the events on August 10, which are to continue to August 17. The most noted drivers of all Europe came with the pick of the world's racing cars to do battle for the art trophy offered by Professor von Herkomer and executed by himself, and for the cash prizes, amounting to $2,500, donated by Dr. von Bleichroder.

The Herkomer competition was divided into three parts: (1) An exhibition of cars on August 11, with prizes for beauty and convenience; (2) a hill-climbing exhibition on August 12 on the Kesselberg; (3) speed contests on August 13, in Forstenrieder Park.

The Bleichroder race was held on the same road as the speed trials, and the touring car trials through South Germany began to-day, to last three days.

The courses chosen by the promoters of the events could not have been better selected to give the visitors a sample of Bavaria's beauty, and that of South Germany in general; the lofty mountain scenery, the meadows, the swift rivers and their waterfalls, the cool woods and the neat little houses make pictures that cannot be easily equalled.

The exhibition which opened the week has never seen its equal, not even in France. and the judges must have had a hard time to decide the awards. First prize was taken by a 28-32-horsepower Mercedes with landaulet body finished in red, exhibited by Herr Roth, of Munich. The second was given to a 40-horsepower Métallurgique fitted with a body by Kruch, of Frankfort, which is owned by Herr Ladenburg, of Munich, and third prize was awarded to another 28-32-horsepower Mercedes shown by Director Seligman, of Hanover.

When the cars were weighed in for the Bleichroder race on Friday morning, August 11, several of them did not meet the rules. The Dufaux (Swiss) did not have any reversing gear, and was eight kilograms over weight, so it did not appear at the start of the race. Rain began to fall in the evening and lasted all night, so that the competitors had to go to Kochel in the wet for the start of the hill climb early Saturday. The course was seven kilometers (4.35 miles) long, beginning at the sixty-fifth kilometer post in the little village of Kochel, and ending at the seventy-second kilometer post. In this distance an ascent of 250 meters was made. The course put a hard test on the cars and the drivers, for there were many difficult corners and serpentines, following close on one another; on one side was a ravine and on the other the mountain, but iron bars protected the users of the road from falling over the edge.

The machines were started at two-minute intervals, the trials beginning at 10 o'clock with a contest of motorcycles, after which came the touring cars . George Retienne, on a Mors motorcycle, set a splendid pace, making the best time in his class—6 minutes 19 4-5 seconds. A woman driver well known in Germany—Frau Gertrud Eisenmann—won much applause for her splendid ride. Obruda, on a Puch, made the second best time—6 minutes 59 3-5 seconds.

The first of the touring cars, an 18-20-horsepower Peugeot, driven by Beissbarth, went up the mountain wonderfully, and M. Perrett, on a 24-horsepower Peugeot, winner of the Rochet-Schneider cup, was much admired for his driving.

Particular interest was shown by the public in the German cars, the Mercedes, Adler, Benz, Argus and Horch, which made quick runs, but especial praise is deserved by the English Daimler, which showed surprising speed. Miss Maud Manville, who owned and ran it, proved to be an excellent driver, and made better time than most of her competitors. The Daimler was faster than the 60-horsepower Mercedes on which Willy Pöge won the speed trials later on the Forstenrieder Park course. In fact, the big cars did not quite meet the expectations of the spectators. The most interesting sights were the racing cars climbing the mountain at marvellous speed, the drivers showing great skill.

The best times made up the hill were as follows: Hieronymus, 90-horsepower Mercedes, 5:34 3-5; Wagner, 85-horsepower Opel, 5:55 1-5; Werner, 100-horsepower Mercedes, 5:56 1-5; Braun, 100-horsepower Oe. Daimler, 6:01 3-5; Hanriot, 120-horsepower Clement, 6:13 3-5; Bugatti, 60-horsepower Mathias, 6:42 1-5.

There was glorious sunshine on Sunday, and the people went in endless procession on bicycles, in cabs, in automobiles and on foot out of town to the Forstenrieder Park to see the speed trials. It is estimated that there were more than 150,000 persons in the park. In the stands could be seen members of the royal house, as the Duke Franz Josef in Bavaria, Prince Ludwig Ferdinand of Bavaria, Duke Luitpold of Bavaria, Duke Karl Theodor in Bavaria, the Duke and Duchess of Calabrien and the hereditary Prince and the Princess of Saxe-Meiningen. Professor von Herkomer was also present and took a lively interest.

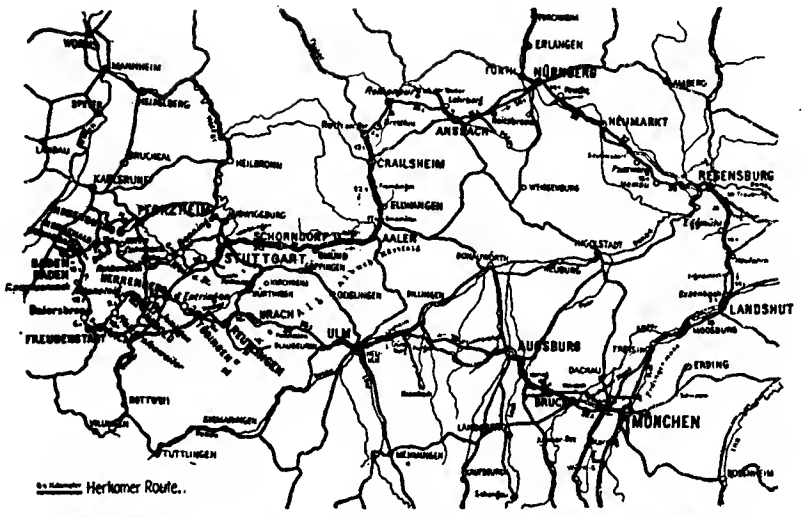
The motor cycles were started at 11:20 o'clock, and of course could show still greater speed here on the level, straight road than up the mountain road the day before. Frau Eisenmann made a remarkable run, and there was no surprise when she was announced the winner in her class. Obruba, on a two-cylinder Puch, was the winner in the class for motorcycles of more than 3 1-2 horsepower.

The best times made in the different classes for touring cars were:

DUFAUX RACING CAR, AT MUNICH.—NOTE NOVEL ENGINE AND RADIATOR SYSTEM.

First class, Willy Pöge, 60-horsepower Mercedes, 4:12 3-5; second class, Maud Manville, 35-horsepower English Daimler, 4:09 1-5; third class, Max Martin, 20-horsepower Martin, 4:25 1-5; fourth class, Carb Bub, 12-15-horsepower Métallurgique, 5:20 4-5.

The course for the trials was a good stretch of road of about six kilometers (3.72 miles), with only two slight bends. After the start of the motorcycles the crowd pressed so hard against the fence that it broke and fell in the road, but fortunately the cars had not yet started and there was no accident. The eagerness of the public was a great hindrance at times—so much so that Miss Manville protested and was started anew. Her first time was 4:21, and on her second trial it was 4:12 3-5. In the Bleichroder race that followed, over the same course, Braun also protested, but abandoned



MAP OF THREE-DAYS TOURING ROUTE THROUGH SOUTH GERMANY

the protest because he could not be given a second trial, as the crowd had already overflowed the road in order to go home.

In the Herkomer race the light cars again made a splendid showing, while the heavy cars of Tischbein, Pöge and Clarence Dinsmore (driven by Werner), did not attain the speed expected.

Although the Bleichroder race was full of interest, no extraordinary speed was reached, the 120 kilometers in the hour not being surpassed. The road, in spite of being straight, was not the kind on which cars could reach their full speed. The times of the racing cars for the 3.72 miles were:

Werner, 100-horsepower Mercedes, owned by Clarence G. Dinsmore, 3:11 4-5; Wagner, 85-horsepower Opel, 3:13 1-5; Braun, 100-horsepower Oe. Daimler, 3:15; Hieronymus, 90-horsepower Mercedes, 3:15 2-5; Hanriot, 120-horsepower Clement, 3:17 4-5.

The foregoing events closed the first part of the program for the week's competition, the second part comprising the touring trials through Bavaria, started to-day. The first day's trials are from Munich through Bruck, Augsburg, Ulm, Reutlingen and Freudenstadt to Baden-Baden; the second day's run will be from Baden-Baden to Stuttgart. Aalen and Ansbach to Nurnberg, and on the last day, August 17, the run will be from Nurnberg through Neumarket, Regensburg and Landshut back to Munich (Munchen).

Liedekerke Cup Race a Victory for Belgian Industry.

Special Correspondence.

PARIS, Aug. 14.—The contest for the Liedekerke Cup, run on the Dinant circuit, in Belgium, yesterday, resulted in a complete victory for the native industry. The circuit, which was of a very varying nature, was 102 kilometers 740 meters around, and had to be covered four times, making a total distance of 255.3 miles.

The regulations specified that all the competing cars should be fully equipped touring cars, having a cylinder capacity of not more than 3.75 liters. A comfortable tonneau body having side entrance, four seats and four passengers or their equivalent in ballast were required.

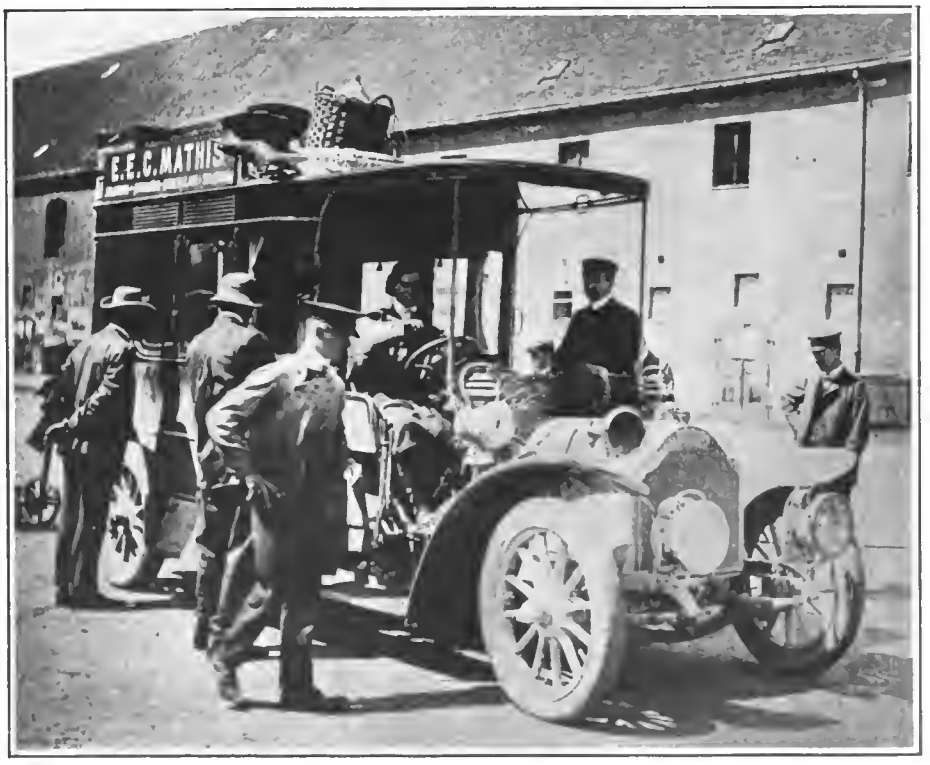
Of the five French cars which figured among the fourteen starters, only one, an Ariès, obtained a classified position Tire troubles played havoc among the competitors, very few escaping entirely. Victory finally came to the Pipe firm, Hautvast winning the cup with a stock type of touring car of 99.73 m.m. bore by 120 m.m. stroke (cylinder capacity, 3.75 liters) in 6 hours 51 minutes 12 seconds, or at an average speed of 41 miles an hour. The same firm also secured the regularity cup, having all its team of three in the final classification, namely: (1) Hautvast, 6:51:12; (6) Jenatzky, 7:28:26; (7) Vandepoel, 7:43:21.

Second, third, fourth and fifth positions were secured respectively by Fisher (Vivinus), 6:56:12; Baron de Caters (Métallurgique), 7:00:31 4-5; Wilhelm (Métallurgique), 7:20:51; Kuhling (Vivinus), 7:23:49.

King Edward has presented a handsome 18-horsepower Siddeley car to the home for convalescent soldiers and sailors at Osborne, on the Isle of Wight. The car can be used not only for touring, but in desperate cases can be used as an automobile ambulance after removal of the seats. Before sending it down to Osborne House, the King personally tested it in the grounds of Buckingham Palace.

The Maharajah of Scindia has just had a very handsome 16-24-horsepower Fiat landaulet made to order for use of the Prince and Princess of Wales during their forthcoming visit to India in the fall. A 24-40-horsepower Fiat truck will convey the luggage of their highnesses and suite.

The Anglo-French "entente cordiale" was testified to in a very convincing manner by British motorists, before the French squadron left England's shore recently. In a reply to Lieut.-Col. Mark Mayhew's request to place motors at the disposal of the French officers for a run up to Maidenhead an the Thames, no less than fifty cars were forthcoming from the members of the corps and Automobile Club. Ninety officers and their ladies were driven up to Maidenhead by the Britishers, where they embarked on launches for a river trip. Other officers were entertained by the Hampshire Motor Union and that most enthusiastic motoring author, Sir Arthur Conan Doyle.



MATHIS CAR ENTERED IN HERKOMER THREE-DAYS' TOURING COMPETITION.

PROGRESS IN CONSTRUCTION OF 1906 MODELS.

AS a result of an investigation which correspondents of THE AUTOMOBILE have conducted in all the large automobile manufacturing centers, it is apparent that deliveries of new cars for the coming season will be made from two to three months earlier this year than heretofore. American manufacturers of cars and parts and fittings have been busily at work during the Summer months on new models and forms, as if of one accord they had decided to abolish the cause for the familiar complaints about slow deliveries at the beginning of the driving season. January 1 has been set almost unanimously as the time to begin actual deliveries of the new models. Already a few manufacturers of cars have the first samples of their leading models for 1906 completed for exhibition, while the majority expect to have models of their entire lines ready for public inspection not later than October. No doubt is entertained by makers regarding the demand for cars next season, and by bringing out their new models thus early they will be enabled to devote the entire Winter to pushing production in the factories and thus accumulating a stock of vehicles large enough to insure prompt shipments upon all orders originating with the New York shows, and the long list of minor exhibitions that ends only with the coming of Spring. Such expedition of the season's work will give great satisfaction to purchasers everywhere, but particularly on the Pacific Coast and in the Southern States, where in the past many orders have been cancelled because the Eastern manufacturers apparently did not realize that the season there began in January, three or four months sooner than in New England and the Middle States, and, having made no preparations to that end, could not satisfy the demands and implorations for deliveries. The advancement should also open the way for a favorable decision to hold the big national shows—at any rate, the trade exhibitions—of the Winter of 1906-7 in November instead of at the end of January, as they are now held. The following news letters from correspondents in the leading manufacturing centers tell in detail the present status of work on next season's product:

Review of Situation in Busy Cleveland.

CLEVELAND, Aug. 28.—This is the season when the majority of manufacturers are taking or preparing to take their inventories; figuring up how much they have made—or lost in the past season's business. Stocks of materials are all pretty well reduced, all the 1905 machines having been shipped out, and while nearly every maker has practically decided on the changes to be made and the majority have got out a new model, very few have yet started actual work on the production of next season's output. Material orders are being placed, and in a number of cases they have all been closed and the material factories are now working on new parts, but few deliveries of material are being made as manufacturers do not want to stock up during inventory time as it might place the cash balance on the wrong side of the book.

Speaking of cash; the automobile business comes nearer to being a strictly cash business than almost any other that can be mentioned. It is almost directly the opposite to what the bicycle business was in its best days. The material people can get cash, or at best allow thirty days on material; the manufacturers require part cash with orders from agents and the major part of the balance on delivery; while the agents get a deposit with order and the cash on delivery of the car, or practically so. The installment plan is very little heard of.

Most production of cars will start about October 1 this season and dealers will begin getting deliveries in November and December. The shows are being practically ignored so far as being the accepted time for placing new models before the public. Manufacturers have had it clearly demonstrated to them that they cannot delay until the first of the year to make up their minds what they are going to build or what their output will be. The season of production has been altogether too short in the past. Manufacturers could not get their material in time and dealers did not get stock cars until purchasers had wearied of waiting for them, a condition resulting in many lost orders. The example of the few makers who got out the best machines they could early in the season and then rushed production and deliveries while the others were still working out new ideas, is now being universally followed.

Increased production is talked of by every Cleveland maker. It would not be surprising to see twice as many cars built here for next year as were built for this year. The largest makers will increase their outputs 25 to 50 per cent., while among the smaller makers the increase will be much larger, amounting in one or two cases to 200 per cent. In addition, there will be several brand new concerns of importance in this district. It is much easier than formerly to interest new capital in the industry, and the reports of ready sales and prompt returns, together with the general prosperity at this time, make the banks more accommodating than before, all of which will militate in favor of not only increased but earlier production.

Another factor favorable to both of these desired results is the fact that makers are taking more and more kindly to the idea of standardization of parts. This enables the material makers to follow more closely their own ideas, reducing the number of varieties they have to make, enabling them to produce in a systematic manner and rendering it possible to guarantee deliveries better than ever before.

The Garford Company, the successor of the Federal Manufacturing Company, has announced an interesting policy for the new season. Formerly it built about anything that a concern wanted, from small parts to complete chassis, ready to be fitted with body. This year it will confine itself largely to the production of certain lines of parts. From these parts it will be possible to assemble a practical car, but the various parts will be sold to any manufacturers who desire them. The parts will be available only for the larger and higher grades of cars, and the company has decided on a specific number of each of the various parts as its output for the season. The factories have been thoroughly organized to produce these parts, and only the predetermined number, and orders are being taken for certain quantities with certain dates of delivery. Material will be furnished to makers much earlier than ever before, and, barring accidents or strikes, deliveries will be made when promised. To accomplish this the company has its raw material in stock and has the facilities for producing each line of parts judged to a nicety.

The Winton Motor Carriage Company is not yet prepared to announce its policy for next season or say anything about its new models. It is understood that the company has been buying considerable new machinery of late and that the output will probably be increased. An interesting departure that will be introduced into the production of the Winton cars will be the testing of every part entering into the make up of the car for tensile and torsional strength. Not only will each piece be subjected to severe strains several times what it is expected to stand, but it is said that one in every fifteen to twenty pieces will be broken and the material analyzed to see that it is up to standard. To accomplish these results the company is installing a Riehle testing machine built by the Riehle Brothers Company, of Philadelphia. It has a capacity of 200,000 pounds.

The White Sewing Machine Company produced about 1,000 cars in the past season, and at least 1,200 and possibly 1,500 will be built during the coming manufacturing season. The company is installing new machinery and rearranging its factory so as to take care of the increase. It is also starting work much earlier than ever before; in fact, production of the new Model F side entrance car was started August 1, and a number have already been shipped to agents. This car has a somewhat larger engine and greater capacity all around than the present model, and will sell at $300 more. The White company is doing an extensive foreign business, having a branch house in London and agencies in nearly every European country and in Australia, Japan, Hawaii, and the Philippines.

Work on the new Baker factory is well under way, and it has been decided to make the original buildings considerably larger than originally planned, which is a good indication that the company is pleased with the outlook for next season and is planning for largely increased output.

The Peerless Motor Car Company will have its two new buildings completed in about ten days and is closing up its old plant entirely. The new plant has about 110,000 square feet of floor space, and with the installation of new machinery it will have facilities for producing three times the former output. The company is not yet prepared to say anything about the models it will make, other than to state that prices

will be somewhat higher. The new models have been settled on in a preliminary way and actual production will start within thirty days. It is expected that a number of agents' samples will be shipped early in October, which is much earlier than ever before.

The Royal Motor Car Company will have a largely increased output. It is erecting two new buildings, an erecting room 80 by 180 feet, and a stock room 60 by 90 feet. It has been purchasing considerable new machinery of the most modern type and is building jigs for all parts, so that every part will be interchangeable. Work on the new product will start very soon and agents will be supplied early. In general, the car will be the same as heretofore, but there will be improvements in nearly all details.

The Hyslop Body Company, which has been doing mainly a local business for several years, has secured a part of the new building of the Royal Motor Car Company and will be ready to supply high-grade bodies in greater quantities than heretofore.

The Gaeth Automobile Company, which heretofore has confined its business largely to the local trade, will branch out the coming season. It has secured additional capital and will erect a new factory building on the West Side. Its new model is under way, but Paul Gaeth is not prepared to say anything about it except that it will be rated at 50 horsepower.

Preparing for Early Delivery.

HARTFORD, Aug. 23.—From interviews with automobile manufacturers and makers of parts in this section the outlook is very favorable for a large business, and it is certain that they will be in a position to furnish cars much earlier than in the past. There is every reason to believe that both the supply and demand in the automobile line will be much larger in the future than it has ever been in the past.

There is little likelihood that the actual selling season for cars will be advanced. Most people seem to prefer to wait for the New York Show before placing an order, although they may have their minds largely made up beforehand. The difficulty does not appear to have been in the selling end so much as in the manufacturing end. It is the delay in the deliveries that the manufacturers are evidently planning to avoid.

"We expect to have our new cars ready much earlier than ever before," said Wilbur C. Walker, secretary of the Pope Manufacturing Company, "but when they will be ready I am unable to say. We will have cars ready before the first of the year. We were delayed beyond our calculations last year and there is no likelihood of these delays being repeated this season."

President Milton J. Budlong, of the Electric Vehicle Company, said: "I cannot say at this time when our new models will be ready, but they will be ready sooner than last year's were. We are doing some work on them now, but not as much as we would like to. We were delayed in our work on the new models because of the rush of business, and we were obliged to attend to the business in hand. It is a little too early to say much about the plans of the company, as they may be changed."

Clarence E. Whitney president and manager of the Whitney Manufacturing Company, states that in each of the company's three departments it makes goods which are used by automobile builders, but his largest business is through the chain department. "A very large percentage of the automobiles made in this country this season have been chain driven," said Mr. Whitney, "and we believe this condition will exist in the future, as the direct driven cars do not seem to be in favor except for medium weight touring cars, and the greater portion of the business is made up of other models. We understand a number of the most prominent manufacturers abroad gave up the chain drive for the direct gear drive and have returned again to the chains. Most of the American manufacturers who are now making chain-driven machines have settled on the same plan for the coming year, and on account of the conditions referred to, we intend to operate our plant to its fullest capacity right through what might be called the intermediate or dull season, in order that we may accumulate a large stock of chains and parts and thereby prevent the necessity of disappointing customers as it has been necessary for us to do to a certain extent during the busiest portion of the season just past."

"Unquestionably the automobile manufacturers are preparing to make prompt deliveries for 1906," said D. J. Post, treasurer of the Veeder Manufacturing Company and of the Post & Lester Company. "We are planning to get the necessary information about the 1906 models very early this fall, so that we may have the attaching fixtures for Veeder odometers and tachometers all ready for the principal cars by the time of the New York Show in January. Of course, as in previous years, there will be many late ones who will be uncertain as to the exact details of their cars until after the New York exhibits, but the big makers, who now know the cost of change and delay, all seem to be laying their plans for early delivery."

1906 Models Ready for Market.

TOLEDO, O., Aug. 24.—The Pope Motor Car Company is now ready to make its first shipment of the 1906 models of its 20-horsepower cars. About October 1 the first shipment of 30-horsepower cars will be ready and two weeks later its 45-horsepower models will be ready for shipment. These initial shipments will be largely for agents' use in taking orders, but the factory will be in position to fill orders as they are received.

This is the earliest date on which the Pope Motor Car Company has ever made shipments for the coming season, according to the statement of F. M. Keeton, manager of the sales department. These three models will constitute the company's stock patterns for 1906, although, of course, orders for special cars will be filled as received. The 1906 patterns include a number of new ideas and features about which the company will give no information at present.

"This is earlier than we have ever made shipments for the coming season," said Mr. Keeton, "but we expect to do the largest business we have ever done. We are now making an addition which will give us 40,000 square feet additional floor space, or a total of 400,000 square feet. We expect to employ about 1,600 men, and make between 1,200 and 1,300 cars. This year we employed about 1,000 men and made about 1,000 cars in the year ending August 1."

Other automobile concerns in this city are equally alert for the coming season. The Consolidated Manufacturing Company, which makes the Yale automobile, is already busy on its cars for next season, although no information would be given out as to what is being done. "We do not care to say anything at present," is the manager's reply to a request for information.

The Ensign Foundry Company, maker of parts, has just awarded a contract for a large addition to its plant. The company is now at work making parts for next season, and is in position to promptly execute orders in its line.

The Lichtie Automobile Company, which conducts a garage and sales business in this city, has been notified that it can expect cars for exhibition purposes early in the winter. The present season is by far the best in the history of the business in Toledo, and every indication points to 1906 being as far in advance of this season as this year was in advance of 1904.

Western Companies Active.

ST. LOUIS, Aug. 23.—The 1906 models of the St. Louis Motor Carriage Company are now about ready for the market. In the early start for next season the company is making up for the delay experienced in placing its 1905 cars before the public.

During the past year this concern has improved the facilities in its St. Louis factory, and this has enabled it to turn out its finished product with greater dispatch than formerly.

"We are enabled also to get a good start on the 1906 model," said Jesse French, Jr., secretary and treasurer of the company, "because of the fact that the new model will but slightly differ from that of 1905. Practically no change will be made in the running principles of our machines. We will retain our present form of motors and transmission.

"The only changes will be in the body, clutch and frame of the car. What the change in the body will consist of is as yet undetermined. The frame will be heavier and one-half inch deeper. The new clutch will consist of eight thinner plates, instead of six as in this year's model, and it will work with a long, flexible spring instead of dogs and rollers as at present. The prices will remain the same, and whatever changes are made will not be radical."

The company makes two models, one a 30-34-horsepower and the other of 18-22-horsepower, both of the tonneau type.

The St. Louis Car Company, which recently begun building the American Mors, expects to have its two 1906 models ready for the market by January 1.

Manufacturers of parts are also preparing for early orders. J. H. Neustadt Company is now working on parts for 1906. "We have already received a number of inquiries from customers who are not going to wait for the end of the season to order for the next season," said Jules H. Neustadt, president of the company. "While this indicates that they intend to continue this season's business without intermission, we are going right ahead with our work on parts for 1906, and shall be prepared to make deliveries in three or four months."

"There will be no radical changes in parts from the models of 1905, as far as we are concerned. There will be some change, however, for there are possibilities of improvement in those of the present season. As far as the underlying principle and the actual construction of a car is concerned, there will be practically no changes in the parts we make."

Indianians Making Ready.

SOUTH BEND, IND., Aug. 23.—The 1906 models of the Studebaker Automobile Company of this city, have been completed, and the cars are now being tried out on the road. Charles A. Carlisle, of the Studebaker Company, has just returned from a trip to Chicago, which he made in the new four-cylinder car in order to test the motor and other working parts, and despite the fact that rain was encountered and the roads unusually heavy, the car fully met all requirements. The new five-story building, which is to be used exclusively for the manufacture of automobiles, is now nearing completion, and the company expects to occupy it about September 1.

The Casaday Manufacturing Company has just completed a new four-cylinder

water-cooled engine, which will be used in its full line of trucks and wagons for 1906. The cylinders are 5 1-2 by 5 1-2, cast separately, and the motor will develop 35 to 40 horsepower. Another change in the 1906 cars has been decided upon: instead of being gear-driven, as heretofore, friction drive will be used in all of the 1906 output.

Philadelphia Lines for 1906.

PHILADELPHIA, Aug. 24.—The Jones-Corbin Company, of this city, will make a new departure in its 1906 line in two models of high-powered runabouts—28- and 35-horsepower. A 40-45-horsepower four-cylinder four-cycle double side-entrance touring car will complete its line for 1906, the first complete models of which should be finished by September 1, and the company expects to be in a position to make deliveries a month later. The 1906 Jones-Corbin will be equipped with Continental or Michelin tires, as the purchaser prefers. Other changes will include a new construction of the motor and motor bed which will tend to stiffen the frame and insure true alignment.

L. S. Chadwick, president of the Fairmount Engineering Works, makers of the Chadwick automobile, states that the first complete motor of the 40-horsepower 1906 Chadwick touring car has been running in the shops for a week or more. They adopted this plan in order to show up any possible defects. The motor weighs 475 pounds (as against 450 pounds for the 1905 24-horsepower motor). "We are also about finishing our first 1906 marine motors—20, 24-30 and 40-45-horsepower," said Mr. Chadwick.

"There will be two 1906 models of the Chadwick car—a 40-horsepower and the 24-horsepower touring car. The latter will be equipped with a considerably lighter body than the 1905, while the weight of the former will also be reduced. We expect to have our first cars completed about November 1 and shortly after that time will be ready to make deliveries."

Mr. Spear, of the Autocar Company, of Ardmore, Pa., says that the 1906 models of the Autocar will show a few changes from the 1905 line. Next year's models, upon which work is now being pushed, will include the 24-horsepower, four-cylinder, side-entrance touring car and the 10-horsepower runabout. Judging by the progress now being made, it is safe to say that the company will be prepared to make deliveries by January 1. Within the year the capacity of the company's plant has been practically doubled, a large addition having been completed early in the present year.

Perfecting New Models.

BUFFALO, N. Y., Aug. 23.—While the automobile manufacturers and parts makers of this city are busy preparing for the early marketing of their 1906 models and goods, not one of them is willing at this time to divulge the slightest information relative to the changes in style and equipment, or give any idea of the improvements in the mechanism of their forthcoming products. In former years the manufacturers have not had their new goods on the market until toward the end of the calendar year, waiting until "show time" to introduce their new models.

However, the 1906 automobiles and accessories will be placed upon the market considerably earlier. Local makers expect to be doing a lively business in their products by the first of January, and this early start will have the advantage of bringing the new features and improvements to public notice before the annual automobile shows.

The E. R. Thomas Motor Company will probably be the first local manufacturer to place its 1906 product on the market. S. F. Heath, sales manager for the company, in an interview with a representative of THE AUTOMOBILE, said: "We are now working on our 1906 models, but are not yet prepared to talk on the subject. We still have considerable 1905 business to clear up before starting on the manufacture of 1906 products, but I can say now that we will be shipping 1906 cars by next November."

Charles Clifton, treasurer of the George N. Pierce Company, maker of the Pierce Great Arrow, states that his company will be ready for business in the 1906 goods not later than the first of the year. "We will have our early product to begin shipment by about the first of January, but before that time we will have our agents supplied with 1906 model demonstration cars, and we expect to do considerable business in our new cars before the beginning of the new year. We are at work perfecting our new models now, but will not be prepared to give out any details regarding them before October 1."

The automobile parts makers are noncommittal as to what their changes and improvements for the coming year will be.

New Cars for New Season.

SPRINGFIELD, MASS., Aug. 23.—Manufacturers here are already busy with models for 1906, and as a result these will be placed on the market much earlier than usual.

The Knox Automobile Company will put on the market a four-cylinder touring car, rated from 30- to 35-horsepower. This company has heretofore confined its output to one and two-cylindered cars, the most powerful being rated at 16-horsepower. The body design of this car has not yet been decided upon. It is expected to get the first cars of this model on the road by November 1. The company usually has its models out in time for the New York Show, but this year it is expected that New Year will see the new machines completed.

Another departure of the Knox Company for 1906 will be a commercial car of increased carrying capacity. The company will not make public the details of this car beyond saying that it will have carrying capacity of between two and three tons. The company has not heretofore entered the field of heavy truck making. Its this year's cars are limited to 2,500 pounds capacity.

The J. Stevens Arms & Tool Company, of Chicopee Falls, maker of the Stevens-Duryea cars, has work well advanced upon a touring car of 40- to 50-horsepower. The company will not give the engine design at present or say when the car will be ready for market. The Springfield Metal Body Company is building bodies for the new Stevens creation. The regular open touring car body will not differ radically from this year's model, there being but a slight change in its general lines. The car will also be fitted with an aluminum limousine body in two styles, the larger of which will have an inside capacity of four or five persons. This body is about the lightest of the limousine pattern, weighing complete about 400 pounds.

The Springfield Metal Body Company has commenced the erection of a new plant in Brightwood, not far from its present plant. This will have double the capacity of the present factory. The firm anticipates a season even more active than the present year. The new factory will be ready for occupancy in the early fall, and the working force will be largely increased.

The Rattan Novelty Company, of this city, is just now experiencing its dull season, and the making of new designs will await the makers' adoption of body styles for next year. The firm makes a specialty of hampers and baskets for automobiles.

Three Months Ahead in Boston.

BOSTON, Aug. 26.—Boston automobile manufacturers are not to be left at the post in the race which is now going on to get out the new models earlier than ever before. In every one of the factories in and near this city there is greater activity than ever before at this time of year. In the past the designers have usually only finished with their work in August, but this year in many instances the models for next year are well advanced. Some factories are planning to put new models on the market as early as October, and not a few are preparing to give deliveries by January 1. As a rule the factories are fully three months ahead of last year, and there is some concern as to what there will be that is new to exhibit at the New York, Chicago and Boston shows.

Another tendency that is pronounced locally is the production of "lines" of cars. Managers of the companies are a bit reluctant as yet to give out much information about their models, but it is known that in two or three factories the workmen are engaged on three or four different models of cars in place of the one or two models that were put out last year and in preceding years.

One of the concerns which will put out a more extensive line this year than in the past, and which is prepared to guarantee delivery on and after January 1, is the Waltham Manufacturing Company. The line is to consist of two 20-horsepower touring car models, a 20-horsepower semi-racing runabout, with detachable tonneau, and a 16-horsepower runabout, sold either with or without rear entrance detachable tonneau or fixed tonneau with swing front seat. The buckboard line will include a friction drive car, listing at $375. The first model of this car is now being tested, and it is expected that it will be a revelation in the way of low-priced automobiles.

The Phelps Motor Vehicle Company, of Stoneham, is also preparing to give deliveries on or before the first of the year, fully three months earlier than deliveries in 1905. The line will include a runabout, two moderate-priced touring cars, and the large touring model that has been made in the past.

The shops of the Napier Motor Car Company of America, at Jamaica Plain, are busily engaged on the parts for the 1906 American Napier models. What these are to be has not been made public, and will not be for some time; but an officer of the company states that January 1 deliveries are on the program.

The Ariel Motor Car Company is also preparing for early deliveries, and will have out a 1906 model by October. The Ariel was put on the market last year at the Boston show in March. This year a touring model will be made, and perhaps a second model, although this has not been settled.

Another car which came out at the Boston show was the Sturtevant. Only a few of these machines were built this year, but the Sturtevant Mills Company is at work on some important designs at its factory in Dorchester. The company does not anticipate putting out its machines, however, much before the Boston show next spring.

The Corbin Machine Company, of Peabody, which put out the Gas-Au-Lec last spring, is not ready to announce its plans for 1906, and the same conditions prevail at the factory of the Stanley Motor Carriage Company, in Newton.

Grout Brothers, of Orange, Mass., have had at their Boston salesroom for the past three weeks a demonstrating car of the new gasoline type which they will put on the market for 1906. This car has a four-cylinder, vertical engine of 28-30-horsepower. The company will also turn out a six-cylinder gasoline car. Immediate deliveries are probable on the four-cylinder car. The Grout steam model, it is expected, will not show many changes from that of 1905.

The Crest Manufacturing Company, of Dorchester, is to be in the field in about two months with an entirely new model and a line of cars. Deliveries will be given in December and January.

Local agents and branch managers are looking forward to a busy winter, with none of the quiet that has usually been the feature of the month of December. Many of them are expecting new models before the fall riding season is over, and very few anticipate having to wait for the New York show before they can show their customers what they have to offer for next season. The early indications are for another busy year, the demand that has been so pronounced this year having apparently not been satisfied by any means. There are in this section, also, indications of a considerable advance in the demand for commercial wagons and trucks.

Tire Makers Ready for Business

AKRON, Aug. 23.—Automobile manufacturers in this city well understand that the trade season for 1906 will open earlier than usual. Makers who are introducing changes in their tires for next season have prepared for the earlier opening by finishing their models in good time, and will be prepared as a general thing for the winter exhibitions and the trade. The automobile industry in this city is confined to tire making, with the exception of one firm, the Frantz Body Manufacturing Company, makers of bodies, and they do no original work, leaving the designing and modeling to others.

The B. F. Goodrich Company, perhaps, realizes more than any of the local companies that the automobile dealers will have their machines on the market exceptionally early. From the best information, the season for 1906 machines will open as early as September or October, earlier than expected. The Goodrich Company announces, however, that no great changes have been made in its tires for next year, and it is already prepared to place finished goods in the hands of the car manufacturers for 1906.

The Diamond Rubber Company also realizes that the season will open earlier than usual, and inasmuch as few changes are to be made in its line of tires, it is also prepared to meet the demands for car makers. The company is still making tires for the 1905 trade, and announces that there will be no radical changes in its product. It will, however, introduce some new varieties of tread and offer a larger selection.

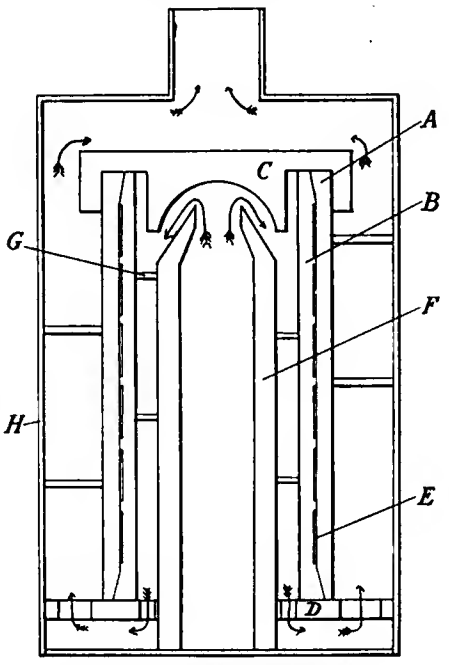
Assistant General Manager S. G. Carkhuff, of the Firestone Tire & Rubber Company, makers of solid tires, states that the automobile season will open somewhat earlier than usual, but that fact will work no hardship on his company, as there will be very little change in the company's tires. Mr. Carkhuff added that his company would likely put a new pneumatic tire on the market, but if so, it would not be for three or four months yet.

J. A. Swinehart, head of the Swinehart Clincher Tire & Rubber Company, is also of the opinion that the season will open earlier than usual. "We are getting ready now for the automobile shows," said Mr. Swinehart; "we will be ready earlier than usual, and at our shows we expect to have a new and novel method for making our display. Unlike the others, we will make some radical changes in our solid tires. We are concaving the sides of the tires more than heretofore. Our two years' experience has taught us that the more we concave the tires, the nearer we get the same results had from pneumatic tires, because it renders them more resilient. We are changing all of our molds at present, so as to make all of our tires according to this new style. We are also introducing a system of rebeading tires."

New Flash Generator.

A new flash steam generator brought out recently by M. Roche, a French inventor, possesses a number of features that appear to be most attractive. There are no small, delicate parts, and the generator can be cleaned inside and outside with ease. The illustration shows diagrammatically the principle on which this apparatus is constructed. Two cast steel cylinders, *A* and *B*, are accurately turned so that one fits closely within the other; the adjoining surfaces are ground to a true fit. Two caps, *C* and *D*, held by studs and nuts, keep the cylinders in their proper relative positions. On the outside of the inner cylinder is cut a helical groove *E*, 4 inches wide and 1-16 inch or less in depth; in a generator of the standard size, 12 3-4 inches in diameter and 22 inches high, this groove is about 8 feet in length. Within the inner cylinder is still another tube *F*, of refractory material, in the center of which is placed a gasoline or kerosene burner having a single large jet. Flanges *G* are formed in the inside of the cylinder next to the burner tube, so that when the latter is in place a helical passage is formed through which the products of combustion are forced to travel, pasing through the openings in the lower cap and then emerging into the space between the outside of the outer cylinder and the exterior casing of the generator. Here again the gases are forced to take a winding course by another set of helical flanges formed on the outside of the cylinder *A* and fitting close against the outer casing *H*. The flanges not only form a long passage for the gases so they will have time to give up much of their heat, but also assist in absorbing the heat. When the generator has been sufficiently heated, water is forced by means of a pump into the lower end of the helical groove between the steel cylinders, becoming hotter as it rises and finally emerging at the top, where the engine supply pipe is connected, in the form of steam. The passage between the burner tube and the inner cylinder is one inch wide and of 6 1-2 inches pitch, while the outer passage is 1 3-4 inches wide and of 7 1-4 inches pitch.

It is claimed by the manufacturers of this generator that in case of accident damage to the burner, or, if the regular fuel supply gives out, wood, coal, charcoal or any other combustible may be burned in the fire space with sufficiently good results to bring the car home under its own power. Batteries of these generators are, it is said, very successful for use when large powers are required, while the absence of complications



ROCHE STEAM GENERATOR.

makes the apparatus attractive for automobile and other comparatively small power plants.

CLUB ORGANIZED IN OMAHA.

Special Correspondence.

OMAHA, Aug. 24.—The Omaha Automobile Club was organized yesterday at the Commercial Club rooms, with the following officers: President, Thomas A. Fry; Vice-Presidents, Gould Dietz and Dr. Gilmore; Secretary, John Parrish, and Treasurer, H. Vance Lane. The objects of the club were stated as follows: To induce agreements as to road rules and speed regulations; to improve roads; to attain a better understanding among autoists and between them and the farmers and team owners.

Committees were appointed to draft constitution and by-laws. It is probable that the club will be incorporated, and that a club house, or at least luxurious quarters, will follow in a short time. For a while the admittance fee will be only $5, the intention being to get every automobile owner in Douglas county on the rolls.

This is the first attempt made in Omaha to organize a club of automobile owners and drivers. The number of machines in town has nearly doubled this season.

We took our first ride in an automobile last week when Ed Porter took us spinning for a short distance on Howard street. Tuesday Captain Lyle took us out on the Suwannee Springs road, and we fairly flew. Since that time we have made up our mind that when we again "hit the grit" it will be in an automobile.—*Live Oak (Fla.) Democrat.*

Non Stop--Economy Test at Long Branch.

WITH a distance of 2,915 miles to its credit, the Frayer-Miller air-cooled car won the Long Branch six-day non-stop and economy contest at midnight, Saturday, August 26, the actual running time being 143 hours 46 minutes. Instead of stopping, however, the car continued to run until 3:30 P. M. Sunday, bringing the total mileage up to 3,202 in 159 hours 24 minutes. The longest non-stop run was of 1,866.4 miles, which was covered in 96 hours 53 minutes. The Frayer-Miller car differs from other air-cooled machines in having each cylinder fitted with a jacket through which air is forced by a centrifugal blower, cooling being accomplished by convection. There are four cylinders, arranged longitudinally in front, and the motor is rated at 16 horsepower.

Second place was taken by the Corbin car, which covered 2,321 miles in 143 hours 37 minutes and stopped at midnight. Like the Frayer-Miller car, the Corbin machine has a four-cylinder air-cooled motor placed longitudinally in front; but the radiating surface is composed of soft metal combs inserted in the cylinders. Air circulation is maintained by fans of the usual type. The motor is of 16-horsepower. The manufacturers state that the car was assembled and finished in the greatest haste for the contest, and was barely finished in time to take a single preliminary spin over the course. This lack of the usual "tuning up" process makes its performance all the more creditable.

The Wayne car, which was third, covered 1,902 miles in 145 hours 2 minutes. This car has a two-cylinder water-cooled motor of 16 horsepower.

Following are the summaries:

Frayer-Miller car.—Mileage, 2,915. Time, 143 hours 46 minutes. Total mileage, 3,202 in 159 hours 24 minutes. Non-stop mileage, 1,664 in 96 hours 53 minutes. Gasoline consumption, 211 gallons. Oil consumption, 10 gallons 1 pint.

Corbin car.—Mileage, 2,321.6. Time, 143 hours 37 minutes. Gasoline consumption, 190 gallons. Oil consumption, 29 gallons.

Wayne car.—Mileage, 1,902.8. Time, 145 hours 2 minutes. Gasoline consumption, 134 gallons. Oil consumption, 31 gallons.

The "tire test" held under the auspices of the New Jersey Coast Auto Assn. was announced as one of the features of the week, but it did not come up to expectations, to say the least. The Maxwell-Briscoe Motor Car Co., of Tarrytown, N. Y., volunteered the use of four cars for the test, and the promoters of the carnival purchased the tires which were "tested." Each car was equipped with two makes of tires. Though it was intended that each car should at all times carry its full complement of four passengers, in order to make the test as severe as possible, the cars sometimes carried a single passenger and sometimes five each. The "observers" were in many cases hotel chambermaids and boys who wanted to get free rides, and who would jump out and vanish when they had had all the riding they wanted. Consequently the records were kept in a very loose manner, and cannot be taken seriously. Some of the tires were applied by experts and some by novices; one of the latter was seen using a screwdriver as a tool. On two of the cars no nuts were screwed on the lugs, the idea being to save time in changing tires.

The tire manufacturers do not recognize the contest, in the arrangement of which they have had no voice; and the manufacturer to whom the trophy is awarded will doubtless refuse to accept it. The redeeming feature of this affair was the excellent running of the four Maxwell-Briscoe cars. They ran continuously for six days and nights, making a total mileage of 1,780 without serious trouble. They maintained a moderate speed and kept close together all the time. Their work met with considerable favorable comment.

The boulevard over which the endurance contest and the tire test were held extends from Seabright to Sea Girt, a distance of twenty miles, and is smooth and level. At each end, where the cars turned, were tents in which supplies were stored.

An automobile "show" was held in a small building at the rear of the West End Hotel, but it attracted very little interest.

On Thursday, August 24, a series of gymkhana races were held, including backward race, water-carrying race, obstacle race, pick-up race, and the like.

Cape May Races.

Interest in the three-days race meet at the Cape May, N. J., beach was naturally centered in the four big racing machines—the 80-horsepower Darracq driven by A. L. Camphell; the 120-horsepower Gordon-Bennett Fiat driven by Louis Chevrolet; the 60-horsepower Ford racer, driven by Henry Ford; and the 120-horsepower Christie double-ender, driven by its designer and builder, Walter Christie.

Nine events were listed for the first day, Friday, August 25; but owing to the non-arrival of some of the big machines it was only possible to run off minor events. A 24-horsepower Fiat, driven by Cedrino, captured the kilometer event with moving start for middleweight cars; time, 39 1-5 seconds. Something of a sensation was caused when Mrs. Clarence C. Fitler, of Philadelphia, in a Packard, won the kilometer race for touring cars up to 30-horsepower; time, 56 seconds. The third event, a kilometer race for touring cars up to 50-horsepower, driven by owners, was won by H. J. Thropp's 40-horsepower Winton in 59 seconds. The same car won the kilometer race for touring cars up to 40-horsepower carrying owner and three passengers. Time, 51 1-5 seconds.

On Saturday, the second day of the meet, the weather was fine and the wind light; but the beach was not in its best condition, and no records were broken. The 80-horsepower Darracq, driven by Campbell, covered a mile in 38 seconds, thus, as it afterward proved, winning the Cape May cup, valued at $1,000, for the car making the fastest mile on the beach. In the trials for this cup the 120-horsepower Fiat, driven by Chevrolet, made the distance in 39 2-5 seconds; the Christie 120-horsepower car in 39 4-5, and the Ford 60-horsepower car in 40 seconds. Much better work was expected of the Fiat and Ford, but neither car was in its best trim. The Fiat was fitted with road gearing, and lacked tuning up, as did the Ford also. Mrs. Fitler, with her 28-horsepower Packard scored another win, capturing the mile event for touring cars up to 30-horsepower.

The summaries are as follows:

One mile, middle weight cars.—Won by Henry Ford, 60-horsepower Ford. Time, 51 3-5 seconds. Only competitor.

One mile, for cars up to 30-horsepower.—Won by Mrs. C. C. Fitler, 28-horsepower Packard; George Jones, 20-horsepower Jones-Corbin, second. Time, 1:15 3-5.

One mile, for cars up to 50-horsepower.—Won by J. N. Wilkins, Jr., 40-horsepower Winton; J. H. Thropp, 40-horsepower Winton, second. Time, 1:31.

One mile, for cars up to 40-horsepower.—Won by J. N. Wilkins, Jr., 40-horsepower Winton; J. H. Thropp, 40-horsepower Winton, second. Time, 1:16.

One mile, for cars up to 20-horsepower.—Won by Thomas Beckers, 20-horsepower Pope-Toledo; George Jones, 20-horsepower Jones-Corbin, second. Time, 1:25 3-5.

One mile, for heavyweight cars.—Won by Chevrolet, 120-horsepower Fiat; Campbell, 80-horsepower Darracq, second. Time of winner, 51 4-5 seconds; of second, 57 seconds.

One mile, for cars up to 40-horsepower, carrying four persons.—Won by C. J. Swain, 40-horsepower Winton; J. N. Wilkins, Jr., 40-horsepower Winton, second. Time, 1 hour 24 minutes.

The kilometer trials for the big cars were held on Sunday, the long list of entries and events having made an extra day's racing necessary. Christie, in his double ender, covered the kilometer in 23 2-5 seconds, winning the $500 cup and equalling the American kilometer record made by Macdonald with a Napier at Ormond beach last winter. Christie's time was made in the second of a number of attempts. The big Darracq finished the kilometer in 24 seconds, and the Ford in 25 seconds, the latter making but one trial.

(Continued on page 244.)

PASSING FUEL SUPPLIES TO THE FRAYER-MILLER AIR-COOLED CAR IN THE NONSTOP-ECONOMY TRIALS AT LONG BRANCH, NEW JERSEY—THIS CAR WON THE CONTEST, COVERING 2,915 MILES IN 143 HOURS, 46 MINUTES.

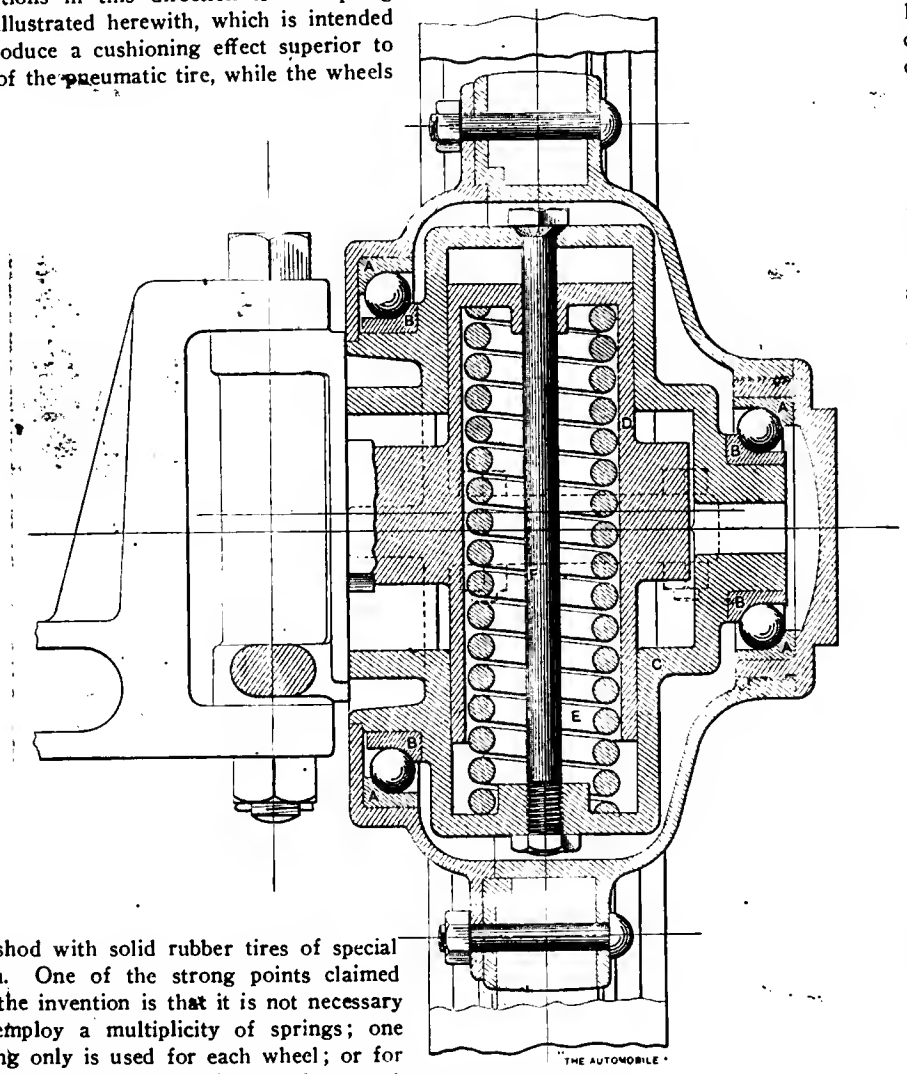
WAYNE TOURING CAR, ONLY "WATER-COOLED" IN CONTEST.—THIS MACHINE COVERED 1,902 MILES IN 145 HOURS, 2 MINUTES.

POLICE OFFICER'S HORSE OBSERVING CORBIN AIR-COOLED CAR.—THIS CAR COVERED 2,321 MILES IN 143 HOURS, 37 MINUTES.

Cliff's Spring Hub.

Innumerable attempts have been made to obviate the well-known train of annoyances due to the use of pneumatic tires, without sacrificing the resiliency that is so essential to the pleasure automobile. Puncture-proof tires, spring wheels, auxiliary spring devices and so on, have been invented in various forms; but the pneumatic is still universally used on pleasure cars, while the efforts to solve the problem are continued.

One of the latest and most promising inventions in this direction is the spring hub illustrated herewith, which is intended to produce a cushioning effect superior to that of the pneumatic tire, while the wheels are shod with solid rubber tires of special form. One of the strong points claimed for the invention is that it is not necessary to employ a multiplicity of springs; one spring only is used for each wheel; or for heavy loads a second spring can be nested within the first to take the excess load. It will be understood that the ordinary spring suspension of the car is retained.



TRANSVERSE VERTICAL SECTION THROUGH CLIFF SPRING HUB.

As the illustration shows, all parts of the hub spring mechanism are contained in the enlarged hub of the wheel and are protected from dust and accident by the steel hub shell, in which a quantity of lubricant is placed. Ball or roller bearings may be used, although the illustration shows balls. The ball races *AAAA* are fitted into the hub shell, and the cones *BBBB* into a hollow steel casting *C*, these two parts being concentric. The inner shell, upon which the hub shell revolves, is held against turning by an extension *D* of the spindle or axle end. This extension is free to slide up and down in the guides formed for the purpose within the shell *C*. Bolt *F* is merely an aid in assembling the parts. After the two halves of the shell *C* are bolted together the bolt *F* might be removed without doing any harm. The helical spring *E* rests on the bottom of the casting *C*.

A little careful study of the illustration will make the action of the arrangement clear. In the case of a front wheel, such as that illustrated, the entire wheel, with its hub shell, bearings and inner shell *C* moves up and down with reference to the axle end and its extension *D*. The part *C* serves as a base for the spring to rest on, while the weight of the car is supported by the spring, which is under compression. The spring can, of course, be made of any desired degree of flexibility, according to the weight of the load to be carried. Thus, sudden shocks sustained by the wheel are absorbed by the spring instead of being communicated to the axle.

This device is the invention of Edward Cliff, of New York, who was for many years actively engaged in the supervision of spring work of various kinds, from light carriage springs to Pullman car suspension, and therefore has a practical knowledge of what may be expected from springs. The actual design was worked out by Benjamin W. Tucker, M.E., 143 Liberty street, New York, who is superintending the construction of a number of wheels that will be used for demonstrating the qualities of the suspension. The device is, of course, as well adapted for use on solid rear axles as on front axles. Mr. Cliff expects that the use of springs in the hubs in place of compressed air in the tires will not only make the car ride more comfortably but will lengthen the life of the various parts because of the reduction of vibration and consequent crystallization.

CAPE MAY RACES.

(*Continued from page 242*)

Following are the times made in the kilometer trials:

Christie—0:24 2-5, 0:23 2-5 and 0:23 4-5.

Darracq—0:24 1-5, 0:24 3-5, 0:24, 0:24 4-5 and 0:24.

Christie tried for the mile record, hoping to beat the time of 38 seconds set the previous day by the Darracq; but the best attempt was timed at 39 1-5 seconds, which Christie repeated twice. The big Darracq also tried for the mile mark, but cracked a cylinder in making the distance in 40 3-5 seconds and had to be towed off.

The following times were made in the mile trials:

Christie — 0:48 4-5, 0:39 1-5; 0:39 2-5, 0:41 1-5, 0:39 1-5, 0:42 1-5 and 0:41.

Darracq—0:40 2-5, 0:41 3-5 and 0:40 3-5.

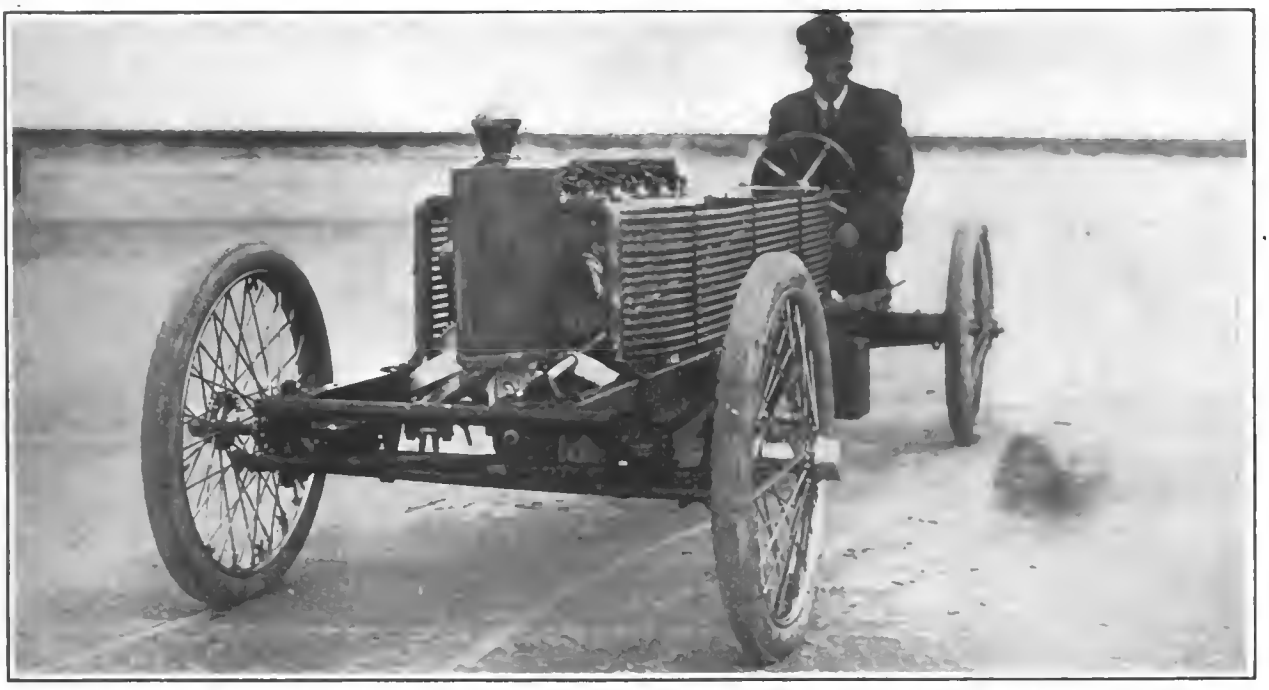
Ford—0:43, 0:44 1-5, 0:44 3-5, 0:41 and 0:42.

The British light delivery van trials, to extend over a period of thirty days, will begin September 18 with an opening run from Oxford, which is one of the four centers for the trials. The others are Kidderminster, Leicester and Cambridge. The vans entering have been divided into four classes: A—loads up to 5 cwt.; B—loads from 5 to 10 cwt.; C—loads from 10 to 20 cwt.; and D—loads from 20 to 30 cwt. A and B cover the same distance—2,405 1-4 miles; C and D each cover 1,814 1-4 miles. The routes are the same with the one difference of the turning points being pushed further out for A and B classes. Unfortunately the numbers of entries received have not come up to expectation, although the club hoped great things in the remaining five days till they closed.

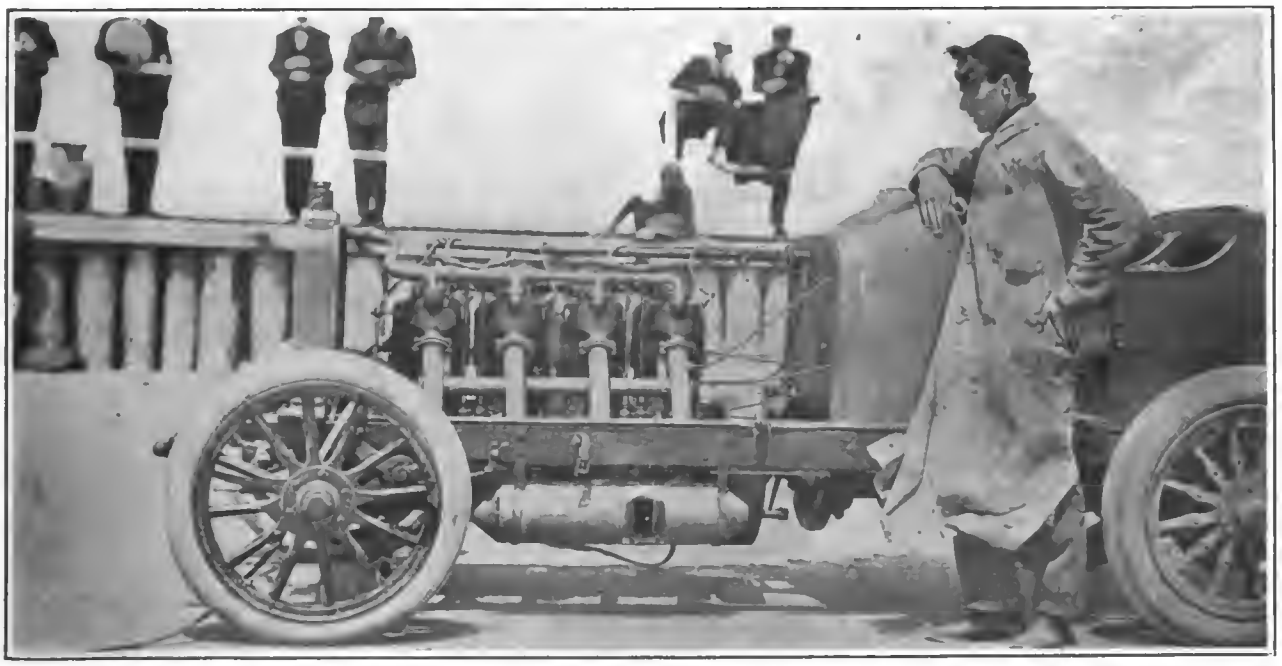
A motorcycle service has been recently established in part of the Transkei (Kaffirland) South Africa, plied by natives who carry the mails from Mount Frere to Kokstadt, about 70 miles, taking in the outlying stations between.

Our automobile club is gaining members every day. Daily there are new names added to those who would like to have a machine and cannot afford one.—*Washington (Ia.) Democrat.*

CEDRINO, THE ITALIAN DRIVER WHO IS BOOKED TO START IN THE VANDERBILT RACE, AT THE WHEEL OF THE FIAT JUNIOR RACING CAR AT CAPE MAY RACES.



HENRY FORD IN HIS SPECIAL RACER WITH WHICH HE COVERED THE MILE, FLYING START, IN 40 SECONDS



CAMPBELL STANDING BESIDE THE DARRACQ RACER WITH WHICH HE WON THE FLYING MILE IN 38 SECONDS.

Letter Box

Orphans' Day in Layafette, Ind.

Editor THE AUTOMOBILE:

[257.]—I send you a photograph taken August 24 before the start of the orphans' outing automobile parade of Lafayette, Ind. Following in the footsteps of New York and other large cities, we yesterday gave to the orphans of the homes in this city an automobile ride and picnic. There were twenty-five machines in line, carrying 168 children. The line was formed as shown in front of the city hall. From there the parade traversed the business portion of town, then headed for the picturesque and historical Tecumseh Trail Park, where an elaborate dinner was served the little ones. The run was made without accident, and at 4 o'clock the Fort Wayne and Wabash Valley Traction Company furnished cars to bring the party back to the city. The children enjoyed themselves as only children can, but I think the drivers got as much fun out of the exclamations, questions and cheering of the children as the little ones did themselves. There was much interest taken in the project from the start, and although the drive was a hot, dusty one, there is talk of making the affair an annual event.

R. A. LEVERING.

Lafayette, Ind.

ORPHANS' DAY IN LAFAYETTE, IND.—TWENTY-FIVE CARS CARRYING 168 CHILDREN LINED UP BEFORE THE CITY HALL.

Interstate Automobile Travel.

Editor THE AUTOMOBILE:

[258.]—To one who lives within a few miles of the main highway between New York State and the West, i.e., the Mohawk Valley, evidences of the rapidly increasing interstate travel by motor car are apt to be more real than they are to those who live in the great centers of population. East or West. In cities automobiles are used so much as a matter of course, and for everyday business, that their local service vastly exceeds their use for touring purposes.

But in the Mohawk Valley, where so many routes between the East and the West (including the bulk of traffic to and from New England), merge into one trunk-line highway, the through travel is much more conspicuous than the strictly local travel. It is no uncommon thing any more to drive out to the main road between Syracuse and Utica, N. Y., and note three or four touring automobiles pass inside of an hour. I have done this myself several times this summer.

Perhaps more than half of these cars bear letters and numbers which show them to be from more or less distant sections of the country. It is probably safe to say at this time that as many automobiles run over the stretch between Utica and Syracuse as there are passenger trains over the same line on the New York Central Railroad. Of course, this does not mean that even one per cent. of the total passenger traffic goes that way, but it does mean that the road traffic has become a factor. It has probably doubled this year over last year, and easily multiplied four times as compared with two years ago.

No other conclusion is possible than that as roads are improved, and touring increases in popularity, the main trunk lines of the United States are to handle a volume of automobile travel quite out of comparison with anything that has been seen up to this time. This brings to mind the subject of special roads for automobiles, which at present is being discussed in various populous centers, though their largest use would seem ultimately to be for our principal trunk-line highways.

You can go from New York to Philadelphia or Boston by a dozen different routes, but through this section you have only the Mohawk Valley for the east-and-west run, until you go above the Adirondacks at the north, or go through the Catskills at the south. A special automobile road through here would be as great a single boon as the touring fraternity could have at this time, especially as the present roads are not good. Not having been anticipated when our present systems of transportation were projected, the automobile found no adequate or suitable provision for its coming. It has so far had but one consistent friend—the common law of the road; notwithstanding which its use grows constantly, while increasing speed and efficiency call for new facilities to render better service to mankind.

Within the memory of living men expensive railway lines have gridironed the continent until—in the United States, at least—new construction is practically at an end. Much of the energy and capital profitably employed for a generation in building steam lines is, for the time being, engaged in electric railway promotion and extension.

All these commercial and national economies, added to the ever-increasing surplus of American wealth, would seem to find no other outlet equal to the building of motor roads. As a financial proposition taken on just the right lines, the results ought to be of a far-reaching and most satisfactory character. Such roads would, of course, be expensive to build, but the outlay required would not amount to a fraction of what a railway costs, leaving the rolling stock out of the question altogether. Not only would they be infinitely cheaper to build per mile than railroads, but since termini and near approaches to towns or cities would be rendered unnecessary, there would be no need to expend vast sums in purchasing property in the heart of valuable districts, which is always a vast capital outlay necessary in railway construction.

Of course, this is only a suggestion of a subject that is being more and more discussed nowadays. The result would not only be additional safety, but also increased speed, comfort and security. Our old toll roads proved unsatisfactory in part because they were a half-way measure, brought forward when travel was of slight volume, and when even the shortest trips were taken nearly always from necessity. To-day everyone travels, until the aggregate mileage, if charged for on a basis that would never be felt by the owner of a motor car, would amount to a sum undoubtedly sufficient to pay all the expenses of construction and a fair interest on the investment as well.

I use the idea that this could be done on the basis of a charge that would "never be felt by the owner of an automobile" ad-

visedly. The great majority of people do not feel the cost of the postage they pay on their correspondence, and yet the sum-total of it supports a very expensive railway mail service and the most extensive post-office system in the world; it allows for free delivery in the cities and in the country, and supports a veritable army of people. It also goes a long way toward making up the deficit on second-class matter. Another trouble of the old toll-road system was the fact that the charges were too high not to be felt by those who used them; consequently the day of cheaper railway transportation was a public boon. The secret of successful automobile roads will undoubtedly be a nominal charge to a vast traffic.

The idea, somehow, stirs the imagination. ROBERT BRUCE.

Clinton, Oneida Co., N. Y.

From Pittsburg to Bobcaygeon.

Editor THE AUTOMOBILE:

[259.]—Some of your readers who are interested in the road conditions of various touring routes, may be interested in the somewhat unusual tour from Pittsburg, Pa., to Bobcaygeon, Canada, which the writer has just finished.

Dark rain clouds were gathering threateningly as we strapped our suit cases to the running boards of our Reo touring car in Pittsburg, and it was with many misgivings that we threw in the clutch for the beginning of the 500-mile run, much of the way to be over unknown roads.

It was 8 o'clock the morning of Monday, July 24, when the start was made. Descending Forty-third street, we crossed the bridge into Millvale, and after a few minutes steered our way clear of the abominable streets leading to the Evergreen roads. As we passed the Evergreen Hotel, our spirits began to rise, and we felt that we were fairly started.

The first excitement was furnished by a rooster, whose active gyrations to avoid us finally landed him under a rear wheel, thus ending a promising young career.

A little later, an examination of the cylinder oiler disclosed the fact that some obstruction in the pipe was preventing the oil from reaching one of the cylinders, and consternation seized us. By resorting to the expedient of shooting oil through a cap in the pipe with an oil gun at intervals of from five to ten miles, we managed to get along.

When the turn on to the Perrysville road was made at McCune's tavern, it was found that the recent rains had left the highway quite deep with mud, so we resorted to tire chains. Clearing skies soon improved the road, and after a few miles we removed the chains and bowled merrily over some excellent roads to Zelienople, shortly beyond which we met with the inevitable *bête noire* of automobilists—a puncture—which caused a delay of one hour.

From Portersville in to Mercer the roads were very bad. Mud, gullies, rocks and hills formed a combination that would break a tourist's heart. At Mercer, which we reached at 5 o'clock, we secured some excellent gasoline at a drug store, and decided to push on to Meadville, which we reached about 7.30 P. M. over some fairly good roads.

Leaving Meadville at 9 o'clock the next morning, we found the sandy roads through Saegerstown and Edinboro right pleasant riding and the scenery beautiful, but slow going was necessary owing to the rutty condition of the sand. The deep sand had a tricky tendency to hold the wheels in the ruts in spite of the driver's desire to leave them, and then suddenly to shoot the car off at a tangent, which was liable to land the unwary in the ditch on the right or against the bank on the left. This, and the attention required by the clogged oiler, made the arrival at Erie late. After luncheon we had the oiler blown out and started at 2 o'clock for the run to Buffalo.

From Erie to Buffalo, the going was fine, and as I opened the throttle and advanced the spark, the words of Maeterlinck's rhapsody hummed in my ears along with the drumlike sound of the cylinders, as I watched the streak of road disappearing beneath the car and was dimly conscious of trees, fences and houses gliding past on both sides. With the exception of a few stretches here and there, the entire run to Buffalo was like boulevard driving, and the distance of 100 miles was covered in about five hours.

The night was spent in the Bison City, and Wednesday morning the twenty-seven miles to Niagara Falls was quickly covered, but there was trouble and delay at the Canadian border. To comply with the customs requirements, I had to find a broker, who for a consideration furnished the necessary two bondsmen, and after leaving a deposit of $25 and paying $2 more for a license, I was allowed to proceed. But all this consumed time, so that it was 1 o'clock when we struck the rocky, disreputable streak of dust called a road that leads to St. Catherine's. In that Canadian city we spent an hour at dinner; then. as the roads improved materially, we began to make better time nearing Hamilton, and passed through some of the most picturesque scenery of Western Ontario.

We got into Hamilton at 5 o'clock with a puncture, and as the reports of automobilists regarding the road to Toronto were not encouraging, we decided to remain over night. Comfortable accommodations were found and we slept late the following morning, being in no hurry to leave Hamilton, as we wanted to spend Thursday night in Toronto. Starting about 11.30 A. M., we made a slow and careful run, arriving at Toronto about 3.30 in the afternoon. The roads were found to be much better than the description given had led us to expect.

Friday, the final day of the run, found us up bright and early. The directions to follow Queen street to the race track, and thence to the Kingston road were very simple, and we soon found ourselves on that broad highway, whose powdered limestone surface made as fine a boulevard as I ever rode over. For fifty miles to Port Perry, our speed was restricted only by the desire to feast on the beautiful scenery, which perfect weather enhanced to a delightful degree. Along this part of the shore of Lake Ontario are found beds of gravel peculiarly adaptable to road making. The gravel is of limestone formation and grinds up into a fine powder under the wheels of vehicles, packing into a sort of crust. This famous road from Toronto to Kingston was built about fifty years ago, and having been kept in excellent repair ever since, it affords a rare treat to the automobilist who has the good fortune to come touring this way.

The Kingston road, however, is not proof against causing punctures, and twenty miles from Toronto it became necessary to change an inner tube. At Whitby, we turned off the Kingston road for Port Perry, but found the going just about as good. From Port Perry to Lindsay, thirty-five miles, the roads deteriorate somewhat, but still can be placed in the "excellent" class. More punctures delayed us at Lindsay, and some difficulty was experienced in mending the tires promptly. Advancing into the interior of the country from Lindsay, we were impressed with a peculiarity in the actions of horses we met, scarcely any of which had ever seen an automobile. They became greatly terrified as we approached them, but when we stopped the engine and remained passive by the roadside, allowing them to pass us, they were easily managed. Not so, however, with horses that had met the strange vehicle before; to them it was potent of mischief, which its silence only intensified.

The road, from Lindsay on, formed a perfect zigzag, with numerous crossroads to puzzle one. Frequent inquiries regarding the way were necessary, and as the houses had become very scarce, we halted at many crossroads in uncertainty. The roads were fairly good, however, and without further incident we entered Bobcaygeon by crossing the bridge over Little Bob Channel about 6 o'clock in the evening of the fifth day of our tour, having driven over 500 miles through interesting and attractive country.

Bobcaygeon is merely a hamlet of about 300 population, situated on one of the connecting links of a chain of lakes, remarkable for its location in the midst of wild and beautiful country combining forest and lake, which offers the tourist a variety of recreation in boating, fishing, and bathing, or driving over smooth, hard roads, a number of which radiate in several directions for miles into the surrounding sparsely inhabited country. S. A. STEWART.

Bobcaygeon, Canada.

Duke Reynolds has purchased Clyde Templin's automobile. It's a "hoss" that won't gnaw the shade trees.—*Exchange.*

THE AUTOMOBILE

VOL. XIII. No. 9

Published every Thursday by
THE CLASS JOURNAL CO.,
Flatiron Building, Madison Square,
NEW YORK CITY.

Cable Address - - - - - Autoland, New York
Long Distance Telephone - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2.00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 5 o'clock p. m. Monday for the issue of Thursday following.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies Printed in 1904,	- - -	639,300
" "	This Issue, - -	13,500
" "	Since Jan. 1, -	487,500

Air-Cooled Car Performances. The excellent performances of the two air-cooled automobiles in the six-day endurance contest recently ended at Long Branch, N. J., are interesting in view of the fact that the air-cooled car is the result of American development. The small air-cooled motor was born in France and there it was brought to a comparatively high state of perfection at an early date. It was applied to bicycles and tricycles with success, and is still largely used in France for such work; but, strange to say, for practical car work the air-cooled motor is unknown there. It was not until the American inventor, with his keen perception of inherent possibilities, took up this type of prime mover that it grew to the importance of furnishing the power for a full-sized touring car. Now American automobiles are made with air-cooled motors having one, two, three or four cylinders; these motors are placed in every imaginable position, vertical or horizontal; motors under the hood or under the body; set longitudinally or transversely; with or without forced draught; with integrally cast flanges or with variously formed pins and fins inserted in the cylinder walls; and so on. And, what is the main point, American cars embodying these features are in successful everyday operation on the road, side by side with water-cooled motors.

Not only does the air-cooled motor compete on even terms with the water-cooled motors, but it actually aspires to the highest road racing honors, two cars with air-cooled motors of hitherto unheard of power having been entered for the Vanderbilt cup elimination trials. The Long Branch contest demonstrated the fact that an air-cooled motor, even of comparatively large size, will run continuously as long as the functions necessary to its operation are properly performed. The winning car ran 1,664 miles at an average speed of a little more than seventeen miles an hour without stopping the motor; doubtless this would have been exceeded had not the carbureter become clogged. This will not surprise those who are cognizant of the work done every day by air-cooled machines, but will doubtless open the eyes of many who have supposed air-cooled motors suitable only for the lightest work.

*

Catalogues Sans Facts. In most manufacturing lines it is generally supposed that the manufacturer who issues a catalogue does so for the purpose of describing his output in a way that will enable an intending buyer to form a correct judgment whether or not the articles described meet his needs. After looking over a miscellaneous lot of catalogues of automobile builders, one is led to believe that some other purpose must have been intended by the publishers. Many manufacturers apparently have three objects in view, which are in the order of their importance: (1st) To make for the car claims that involve little less than actual perfection; (2nd) To enlighten the reader as to the personal opinions of the builders of the car on its merits; and (3rd) To tell something about the construction of the car.

That this is not an exaggeration may readily be proved by glancing over a number of automobile catalogues.

The following are extracts from a lot of catalogues taken at random, and refer to cars of all kinds and prices: "We claim superiority over all other cars, regardless of price." "Our runabout has the same design and all the good features of the most expensive large cars." "The most consistently practical motor car in existence." Superior to any other, regardless of price." "The best value ever offered." "Marks an era in automobile construction." "The only practical automobile ever built." The list might be continued almost indefinitely, but these extracts are sufficient.

It is evident that, as the various statements are contradictory, all cannot be true; and it is more than likely that none of them is quite exact. No intelligent person reading such statements will give them very serious consideration. "But," say the manufacturers, "we are ready and anxious to prove our claims." No such sweeping statements can be proved without exhaustive competitive tests of all the cars involved, so proof is a practical impossibility.

Any buyer assumes that a manufacturer builds the best car he knows how to build if he is an honest man. But that is just the point; does *he* know how better than any one and every one else? It is certainly a pretty egotistical stand to take, and the egotist is not usually the safest man to credit. And again, the homemade opinion, however honest it may be, can carry little on no weight, for, to the novice, one manufacturer's word is as good as another's

After having his attention drawn to a car by advertisement or advice, the interested person usually collects a number of catalogues as the first step toward choosing a car, and reads them with a good deal of care. He scans the introductory pages usually filled with glittering claims and the opinions of the manufacturer, and discovers that each one makes the best car. Being endowed with a certain amount of intelligence, he naturally skips that part thereafter and passes on to the descriptive matter. Here again many catalogues are made up so as to work against their own interests. The investigator will find, perhaps, a large headline announcing that a description of the motor will be found below. "Our motor is built on the most approved modern lines," says the description; "it is light and powerful and constructed of the best materials, and will be found entirely satisfactory," and so on. After a few such "descriptions," the reader is about as wise, so far as the car is concerned, as when he started, but he has gained some information about catalogues, and commences a search for one that tells something about a car.

In these days of beautiful engravings and fine presswork, the opportunities for producing really excellent catalogues are almost unlimited, and there are few things that give more satisfaction to the well-informed man than a complete catalogue giving facts, figures and technical descriptions and illustrating with halftone and line engravings, showing clearly the parts and their functions. The days of mystery regarding motor construction are happily gone, and the confidence of the builder in his output is in no way better expressed than by taking the intending purchaser into that confidence in making plain the details of construction.

People *think* in these days; and if a manufacturer makes a series of sweeping statements and fails to give any information to substantiate his claims, he runs a great risk of being set down as a gas producer.

There are, of course, many concerns that get out catalogues that are in every way admirable, and, fortunately, the number of such is increasing. People do not buy cars merely because their makers say they are good; they must have opportunity to satisfy their own preferences and intelligence, and if catalogues do not present opportunities for making comparisons they will seek for information elsewhere, and likely as not sales will be lost to the builder from whom particulars were originally sought.

In many cases the catalogue is the manu-

facturer's credentials in the view of the buyer, and the latter will consciously and unconsciously form his opinion of the car from the character of those credentials. A good car needs a good catalogue.

✱

Among the voices raised in protest against a continuance of the dangerous and questionable sport of track racing, following the series of recent accidents at Detroit, Cleveland and Buffalo, is that of Col. Albert A. Pope, who has given extra force to his remarks by withdrawing all his cars from track events. In a public statement he said:

"From the outset my judgment has been strongly against track racing for high-powered cars. The great danger to drivers and machines makes me feel that it is an entirely unnecessary risk to life and limb, and should therefore be stopped at once.

"I have permanently withdrawn all my cars from track events, and I trust that that kind of racing will be so discountenanced by the public as to insure its discontinuance. Racing should be confined to road contests, in such events as are free from extraordinary dangers, and which, in a rational test, prove something about the valuable points of competing machines."

Several of the leading automobile clubs that were promoting track meets for the fall months have decided to abandon them, one of the latest to make such announcement being the Chicago Automobile Club. The Cleveland, Buffalo and Syracuse clubs have also pronounced against the holding of any more track races.

KISER EXPRESSES APPRECIATION.

Special Correspondence.

DAYTON, O., Aug. 26.—Just previous to the Kiser testimonial races here to-day, Earl Kiser dictated the following telegram in St. Clair Hospital, Cleveland, O., to Barney Oldfield:

"I thank my friends with all the emphasis of profound gratitude and appreciation for their kindness to me. Their many acts of courtesy have greatly lessened the darkness of my misfortune. I would not exchange the friendships which to-day's events evidence for any earthly thing. I wish I could be with the boys to-day. I will return to Dayton as soon as my condition permits, and it will be my home always. Human sympathy is, after all, the sweetest thing in life, and I appreciate the warmheartedness of Dayton more than ever before. The presence and assistance of my racing opponents is most gracious, and I will never forget them. They are to-day the best people on earth and the nicest lot of boys that ever honored the home city.

(Signed) "EARL KISER."

A French automobilist is said to have offered a prize for the poultry fancier who will breed fowls that will not run across the road in front of automobiles. That's all right in its way; but the trouble is not so much that they run across the road, but that they run halfway across, stop hesitatingly, change their minds, and then flutter back in wild alarm to the side they were first on—for all the world like some individuals of the same sex in the human species.

A. P. B. A. Cup Race on St. Lawrence River.

BY W.P. STEPHENS.

IN marked contrast to the lack of interest which has characterized all auto-boat racing about New York this year is the third contest for the gold challenge cup of the American Power Boat Association, held last week on the St. Lawrence River under the management of the holder, the Chippewa Yacht Club, of Chippewa Bay. In the second contest, late last Fall, the cup was won by *Vingt-et-Un II.*, owned by Willis Sharpe Kilmer, of this club, thus transferring it from salt to fresh water. It was challenged for by the Thousand Islands Yacht Club, of Alexandria Bay, nine miles up the St. Lawrence, and eight other contestants entered under the deed of gift as representatives of other clubs. The representative of the defending club, *Chip*, owned by Jonathan Wainwright, of Ogdensburg, is a typical Leighton launch, with plumb stem, round torpedo stern and moderate freeboard with straight sheer; the hull is of the ordinary single-skin carvel construction and not specially light, the decks have a very slight crown, and as she is used more for speeding about the river in good weather than for real racing, there is one long, open cockpit. The dimensions are 27 feet over all, and 3 feet 4 inches breadth; the motor is the ordinary Leighton two-cycle, with four cylinders, each 4 by 4 inches, with the Leighton reversing screw with three blades. A special canvas cover, like a low tent, was fitted to the cockpit for this race.

The representative of the challenging club was *Radium*, built a year ago at Alexandria Bay and since much improved, new motors being installed; she was partly burned a few days before the race, but by diligent work the damage was repaired. The other competitors were *Invlese*, of the Riverton (N. J.) Yacht Club, of about 26 feet with a three-cylinder Giant motor; *Flip*, of the Hartford Yacht Club, well known about New York; *T Z R*, a new boat by a local amateur, Capt. Johnson, with a special motor built by her owner, Mr. Richardson, of Wilmington, Del.; *So Long*, another new local boat designed and built by Fitz Hunt, with two Trebert motors; *Flying Dutchman*, the new racing auto-boat of H. L. Bowden, with the side frames and two Mercedes motors of the famous racing-gear transferred bodily to her; the new Lozier *Shooting Star II.*, *Panhard II.* and *Skeeter*, a new Seahury launch. With a rating of hut 44.56 under the rules of the A. P. B. A., *Invlese* received an allowance of 58 minutes 35 seconds from the largest boat, *Skeeter*, of 74.54 rating.

The course was specially surveyed on the ice last Winter, a straight leg of 6 miles up the river from Oak Island, a turn of 3-4 mile diameter marked by three flags, a straight leg of 6 miles down, with another turn of nearly a mile diameter. With the exception of one point where it ran down to 18 and 20 feet, the depth of water ranged from 40 to 100 feet, and the course was free from all obstacles, every shoal and rock near to it being specially marked by red flags.

The Chippewa Yacht Club is made up of men who were once active in sailing and the management of races, and who now run their own launches, and in this case all details were well arranged in advance and the series of three races was carried off without a hitch. The match was in the hands of a special committee including S. G. Averell, of the Chippewa Yacht Club; R. H. Eggleston, of the Thousand Islands Yacht Club, and Paul Dashiell. Mr. Averell, with the club measurer, Ernest Serrell, both experts in gas engines and auto-boats, spent the four days prior to the races in running each boat, taking the revolutions of the motor under all conditions; so that the ratings were based on more reliable data than is usually obtainable in a race.

The first race of the series took place on August 24, in clear weather, with a fresh breeze that threatened to kick up a sea, but finally fell during the race. At the end of the first round *Chip* was a few seconds behind her allowance, but as the leaders neared the finish she was very close to *Invlese*. The latter stopped, through some defect in her batteries, losing nearly a couple of minutes, and *Chip* won. *Flying Dutchman* broke her main shaft several days prior to the race and did not start; *Radium*, after stopping on the line at the start, withdrew after one round; *Panhard II.* came to grief through her magneto on the second round and could not be repaired for the following races. The largest boats, *Shooting Star* and *Skeeter*, failed by 13 to 15 minutes in saving their time on *Chip*.

On the second day Mr. Leighton ran the engine of *Chip*, finishing nearly two minutes ahead of *Invlese* and some 15 minutes ahead of the two largest boats. On the last day the contest narrowed down to *Invlese*, *Chip*, *Flip*, *Shooting Star* and *Skeeter*—*Chip*, again handled by Mr. Leighton, winning by two seconds after an exciting and sensational finish in which she only took the lead within the last 50 yards. The elapsed times of these boats for the three days were:

	Aug. 24.	Aug. 25.	Aug. 26.
Chip	1:52:38	1:52:57	1:59:10
Invlese	2:00:26	2:01:01	1:59:12
Flip	1:38:51	1:39:39	1:36:10
Shooting Star	1:14:18	1:17:50	1:15:31
Skeeter	1:16:23	1:18:23	1:19:53

The rating of *Chip* was protested on Friday by *Invlese*, and on Saturday morning the boat was taken out and run over the measured mile, the revolutions being carefully taken by the committee. The rating was based upon 455 revolutions per minute.

the highest speed on the first tests for rating being 451 revolutions per minute. In the extra tests one mile down stream was run in 3 minutes 39 seconds, the speed being 440 1-2 revolutions per minute; in a two-mile run, up and down, the average time was 3 minutes 41 1-2 seconds, and the speed 440 1-2 revolutions per minute. The best round made in the races was at a speed of 16.36 miles, or 3 minutes 40 seconds per mile; as it was not possible that the motor could run up to the assumed figure of 455 revolutions per minute, on which the rating was based, the protest was rejected by the committee.

Commodore Bourne, of the New York Yacht Club, whose handsome island home overlooks the course, presented a beautiful silver pitcher for the boat making the best time in the three races, the winner being H. A. Lozier's *Shooting Star II.* The results of the three races were computed on the point system, but as *Chip* won every race this was not necessary.

The Chippewa Yacht Club retaining the cup, the next match will be over the same course.

MATHESON VANDERBILT CARS.

Two Machines Nearly Completed Are Stripped 1906 Touring Car Models.

Special Correspondence.

HOLYOKE, Mass., Aug. 25.—The Matheson Motor Car Co., of this city, expects to have completed within a week the two cars which will be entered in the Vanderbilt Cup race elimination trials. The Matheson company will enter one car in its own name, and Tom Cooper will drive it. The other will be entered by Lowell M. Palmer, Jr., of New York City, for whom it is being built.

With modesty becoming to newcomers in the big racing game, the Mathesons are saying little and claiming less. The cars they are preparing for the contest are in no sense regular racing machines, being merely stripped machines of their forthcoming 1906 model touring car, somewhat lightened and strengthened for the race. The cars will embody improvements on this year's model, but these are not radical, and at present the firm is reticent regarding just what these changes are. This not only because of the coming contest, but because they consider it too early to give away new ideas in next year's cars.

The racers are of 40 horsepower, with four-cylinder engines, though neither of these points will mark advances on the present cars. They will weigh, stripped, about 2,100 pounds.

An official of the company stated this week that its hopes of eligibility in the elimination trials will be based considerably on the reliability of the cars. It is known that they are capable of a speed of 60 miles an hour, and it is believed that this should be sufficient to land a place on the American team.

The Holyoke racer will be given a thorough try-out before being sent to Long Island. Tom Cooper, the Matheson driver, will make his first appearance at the wheel of a road racer in this car, and it is realized here that his lack of experience in this class of racing will be an important factor in the outcome.

KISER TESTIMONIAL IS LARGELY ATTENDED.

Five Thousand Spectators Witness the Smashing of the Mile Record on a Half-Mile Track—Oldfield, Burman and Fisher Help to Make Meet a Success.

Special Correspondence.

DAYTON, O., Aug. 26.—In the Earl Kiser Testimonial races given here this afternoon, Charles Burman, of Los Angeles, Cal., driving a Peerless stripped touring car, broke the record for the mile on a half mile track, going the distance in 1:18 and clipping one and two-fifths seconds off the previous record held by himself. The mile was the first of a three-mile exhibition event against time. The three miles were covered in 3:54 4-5.

Barney Oldfield drove his *Green Dragon* two miles against the record but failed to break it, making the distance in 2:39 2-5.

Oldfield and Burman engaged in a match race, Oldfield driving his Peerless *Green Dragon* and Burman his Peerless touring car. The race was to be three heats best two out of three, and the distance was three miles. Oldfield won the first two heats. The first was won in 4:53 3-5. Burman's time was 4:53 4-5. The second heat was won in 4:47 4-5. Burman's time was 4:48 1-5.

Five thousand people attended to-day's races. Nearly that number of dollars resulted from the testimonial to Dayton's favored son, who was injured while preparing to race against Webb Jay and Barney Oldfield for the Diamond trophy at Cleveland two weeks ago. The races were attended by Barney Oldfield, Charles Burman, Carl Fisher and other well-known drivers. Over 700 auto enthusiasts from out of town were here.

Following are the summaries:

Three miles open to runabouts.—Harry Gaddis, Franklin, 1st; Ed. Borderwisch, Queen, 2d; Mr. Gibbons, 3d. Time, 5:54 1-5.

Three miles against record by Charles Burman. Time, 3:54 4-5. First mile in 1:18, breaking record for mile on half-mile track.

Three mile open to light touring cars.—Scott McDonald, Reliance, 1st; Ed. Borderwisch, Queen, 2d; Harry Cappel, Winton, 3d. Time, 6:20 2-5.

Fourth event.—Match race, Barney Oldfield against Charles Burman, three miles, two out of three heats.—Oldfield won first two heats. Time, 4:53 3-5, 4:47 4-5.

Three miles open to heavy touring cars carrying passengers.—Carl Fisher, Pope-Toledo, 1st; John S. Johnson, Winton, 2d; Howard Friend, Pope-Toledo, 3d. Time. 5:45 4-5.

Three-mile handicap.—Harry Gaddis, 1st; Ed Borderwisch, 2d. Time, 5:43 3-5.

Two miles trial against record by Barney Oldfield.—Time, 2:39 2-5.

ATLANTIC CITY BEACH TESTED.

Special Correspondence.

ATLANTIC CITY, N. J., Aug. 26.—Those who feared that Atlantic City did not possess a beach broad enough or sufficiently firm for racing will be reassured by the statements of Secretary S. M. Butler, of the Automobile Club of America.

He was here on Friday and inspected the stretch of sand on the lower beach, as the guest of President Walter E. Edge, of the local Automobile Club.

The tide was low at the time, and five cars were run abreast at a fast clip, and the track stood the test splendidly. Mr. Butler says the beach is everything claimed for it.

Unfortunately a number in this locality were misled by several articles in the papers, stating that the wheels of cars sunk in the sand. This report originated in an accident to a big car, the driver of which attempted to run it around one of the jetties that extends from the board walk. As the sand here was soft, he did what everyone who saw him expected he would—stuck. Two horses were required to pull him out, and the tale was spread, with elaborations.

BALTIMORE RACES IN DOUBT.

Special Correspondence.

BALTIMORE, Aug. 23.—It is more than probable that the race meet which was to have been held here on two days in September, and for which a sanction had been given the Automobile Club of Maryland by the American Automobile Association, will be called off as a result of the recent accidents to several of the prominent drivers, including Earl Kiser and Webb Jay, the latter of whom is well known here and had promised to be present on one of the days. Officials of the club are at present out of the city, but H. M. Rowe, a member of the publication committee, is authority for the statement that the meet will not be held.

In place of the track races an endurance contest for a fine trophy is probable, the car showing up best in a certain number of runs between Baltimore and surrounding places—such as Philadelphia, Washington, Atlantic City and others—receiving the prize and holding it until it is re-awarded in competition later.

PARADE AT SAVIN ROCK.

Decorated Cars Make Pretty Night Scene at Connecticut Resort.

Special Correspondence.

NEW HAVEN, CONN., Aug. 28.—Though twice hampered by most inclement weather, the first automobile carnival and parade ever held in this vicinity was successfully carried out at Savin Rock, the popular watering resort of New Haven, Saturday.

Both cottagers at the resort and street railway officials did everything possible to make the event a success, and thousands thronged the beach promenade and the gayly decorated thoroughfares, making a brilliant scene. Thousands of Japanese lanterns, electric lights and Roman candles threw a glamor over the affair which was indescribably charming. Five bands were in attendance, and hundreds of automobilists gathered from all over the state.

The feature of the carnival was the auto parade, which started at 9:15 at night, headed by an automobile decorated with American flags, carrying General Manager John C. Punderford, of the Consolidated Street Railway Company, Joseph Johnson and Samuel Goodwin, the committee of arrangements. As the long line of gayly decorated machines slowly moved up Beach street, to the music of the several bands, amid the boom of fireworks and clouds of confetti, multitudes of vari-colored bombs were discharged from the lawn of Hill's Homestead Hotel, illuminating the shore for miles.

With a Rambler touring car entirely covered by a most realistic representation of the Japanese cruiser *Fushima*, the first prize was awarded Samuel Campbell, of New Haven. Mr. Campbell's car was a marvel of the decorator's art, and elicited applause

wherever it appeared. The ship was over twenty feet long, and complete in all its appointments. Driven by Mr. Campbell, who acted as his own chauffeur, and directed by a pilot on the deck, the machine carried ten little boys dressed as Japanese sailors, adding greatly to the effectiveness of the display. The warship carried a number of dummy guns, several of which were fitted with shotguns, which at intervals discharged blank cartridges, to the delight of the small boys along the route. After the parade was over the *Fushima* collided with a carriage, smashing her bow and appearing as if she had been in contact with a Russian torpedo. Luckily no one was injured, and the accident in nowise marred the event.

The second prize went to Mrs. C. O. Reichert, who piloted a touring Oldsmobile decorated in pink and white flower effects. On a seat projecting over the front sat little Francis Reichert, driving three white doves with pink ribbons. Three young ladies gowned in white accompanied Mrs. Reichert in the car.

James McLay's auto took the third prize, a silver water pitcher, and was decorated in white crysanthemums with a bevy of pretty girls in white gowns. Alexander Scarra won the fourth prize with a car all pink, and bearing a great candelabrum with flowers in the center. With an auto decorated in pink crysanthemums with a latticework effect, Frederick Von Beren took the fifth prize. He was accompanied by his wife and little son.

The first comic prize was awarded William C. Decker, in whose car was a great face of *papier maché* that grinned and winked in a jovial manner. Accompanying it were five hoboes in all manner of rags and tatters. The auto truck of Alexander Scarra, on which ten little colored boys did a human ten-pin act, captured the second comic prize.

The parade followed a route along several miles of streets at the Rock, and was enthusiastically applauded. Messrs. George E. De Merriette and James T. Sullivan acted as judges and awarded the prizes to the satisfaction of all.

CHILDREN ENJOY AUTO RIDE.

Sight-seeing Companies Lend Cars for Use of City's Poor.

Special Correspondence.

WASHINGTON, D. C., Aug. 24.—Through the generosity of a number of the companies operating "sight-seeing" automobiles in this city, the Summer Outings Committee of the Associated Charities has been enabled to give an outing to a number of poor children of the city in the big sight-seeing automobiles.

Early in the week one of the big cars was sent down in the southwestern section of the city, where fifty little children were awaiting it. A trip around the city was then made, many of the tots for the first time seeing the interesting and historical places in Washington, including the White House, the government buildings, the famous statues, and residences occupied by the foreign ministers, all of which were pointed out and explained in detail by the guide who accompanied the car.

Later in the week a number of children in northeast Washington were given the novel experience of seeing Washington after dark in a big automobile, and to many of them the ride was most exciting.

These trips will be continued until the children in every section of the city shall have been given an automobile ride.

CHICAGO CLUB'S OUTING.

Week End Run to South Bend, Ind., Is Largely Attended—Other News.

Special Correspondence.

CHICAGO, Aug. 26.—A Chicago Automobile Club run was made to South Bend, Ind., on Saturday, in which twenty machines, carrying 100 persons, participated. The procession started from the club house at 9 o'clock in the morning, and stopped for luncheon in a beautiful grove in picnic style. At South Bend, which was reached late in the afternoon, the party stopped at the Hotel Oliver, and returned to Chicago Sunday morning. It is proposed to hold several of these short runs during the season, going to a different place each time, in order that the autoists may become acquainted with the various roads in the vicinity of Chicago.

One of Chicago's most progressive suburbs, Austin, is going to have an automobile club in the near future. The movement has been started by several of the suburb's most prominent enthusiasts, led by ex-Alderman Francis. It is Mr. Francis' idea to organize automobile clubs in all of the suburbs, and then have them unite in an organized fight for uniform speed and other regulations for the general good. As it is at present, each village has its own specific laws and ordinances, which differ radically from each other, and which tend to make automobiling less of a pleasure than it should be.

It has been decided to abandon the idea of a race meet in Chicago this Fall, the recent accidents to prominent drivers having led the members of the racing board of the Chicago A. C. to this decision. The chairman of the board, L. E. Meyers, took the matter of calling off the meet into his own hands, and secured the consent of the directors for the action. Mr. Meyers said that although the meet was called off that there was a possibility of having a matineé races for the members of the club exclusively.

ORPHANS' OUTINGS PROPOSED

Columbus Auto Club Figuring on Monthly Trips for Poor and Orphaned.

Special Correspondence.

COLUMBUS, Aug. 24.—The Columbus Automobile Club, at its next meeing, will consider a proposition by Dr. C. A. Howell, the secretary, that the club hold outings for the orphaned and poor children of the city. The plan contemplates the use of cars one day a month donated by the automobile owner, and the object is to take the little ones from the alleys and crowded and sweltering streets for a glimpse of country life, a breath of fresh, pure air, and a romp amid the flowers in the woods.

"I have read with interest of this plan having been carried out elsewhere," said Dr. Howell, "and I sincerely approve it.

"There are hundreds of little children in Columbus who would be incalculably benefited by such outings, and I believe that the majority of the members, if not all of them, would agree to set apart one day a month for such trips. These outings would be especially enjoyable during the nutting season."

There is a movement on foot to repeal the vehicle tax ordinance passed by the city council last spring, which taxes automobiles and vehicles of all kinds. It is decidedly unpopular, and those affected by it declare it unjust. But one vote is needed to knock it out. The city has expended several hundred dollars in issuing license tags, and will be "out" financially if the measure is repealed.

MILWAUKEE CLUB MEETING

Incorporation Papers Signed.--Name Not Changed.--Will Give Orphans Outing.

MILWAUKEE, WIS., Aug. 24.—Plans for the outing which the Milwaukee Automobile Club will give the orphans of the several orphan asylums of this city were discussed last night at a regular club meeting held in the Hotel Pfister. The date for the outing has not yet been fixed, but it will probably be held next week.

After having considered the proposition of forming a corporation, without capital stock, in order to place the organization on a sound basis and to give it proper legal standing, the club last night signed articles of incorporation. The change in the name of the club to the Automobile Club of Wisconsin was not made, it having been decided to retain its present name. Permanent headquarters are to be secured in the near future, and several buildings are now being considered with this end in view.

TOLEDO COUNTRY CLUB.

Company to Purchase Site Near City and Build a Clubhouse and Driveway.

Special Correspondence.

TOLEDO, O., Aug. 24.—If the plans of a number of public-minded citizens of this city do not miscarry, Toledo will have one of the most unique as well as most commodious clubhouses in the West. A company is now being formed for the purpose of purchasing a tract of 207 acres of land twelve miles south of the city on which to erect an automobile clubhouse.

This land includes the battlefield of the famous Battle of the Fallen Timbers, and also the site of the even more famous "Turkey Foot" rock, which is so closely identified with Indian movements in northern Ohio and southern Michigan. For a number of years the Maumee Valley Pioneer's Association has been importuning the national government to purchase the ground for memorial purposes, but without effect.

While definite plans have not yet been decided upon, the company expects to erect a $50,000 club building, and also construct a three-mile automobile track. This track, however, will be more in the nature of a drive or speedway; it will be from 100 to 200 feet wide, and will not be used for races.

The autoist from Indianapolis, who was arrested in Zionville for speeding, couldn't have been going very fast to be overhauled by a constable. It is not of record that any constable ever worked himself up to a speed of twenty miles an hour, except in a few cases where the pursued had the money in his pocket and had refused to pay the costs.—*Lafayette (Ind.) Journal.*

WINTON WILL OPEN CANADIAN BRANCH.

Toronto Selected for Location of Salesroom and Garage—Interest Developing in Commercial Vehicles in Canadian Business Circles—Dispute About Use of Name of Rambler.

Special Correspondence.

TORONTO, CANADA, Aug. 27.—The Winton Motor Carriage Co., of Cleveland, will open its first Canadian branch in Toronto. It has purchased for about $30,000 a lot on the southeast corner of Richmond and Victoria streets, on which it will erect a three-story sales headquarters and garage. The plans for the building are completed, and work on it will be started about September 1. The Canadian agency for the Winton was first held by the Canada Cycle and Motor Company, and afterwards by the Automobile and Supply Company, both of Toronto. The machine has been very popular here, and it is probably on that account that the company has decided to establish a separate branch.

Business men in Canada are beginning to give practical attention to the commercial automobile. Recently J. J. Main, manager of the Polson Iron Works, Toronto, purchased a Packard motor truck from the Canada Cycle and Motor Company. He has since had the machine thoroughly tested out with heavy loads, with results highly satisfactory, both from the standpoint of economy and the amount of work done. It is understood that Mr. Main has some special purpose in view, involving the organization of a joint stock company to utilize a number of motor trucks, but he has not announced this as yet.

The Canada Cycle and Motor Company has brought a second Packard truck to Toronto, with the expectation of selling it this season. Three Knox motor trucks have been sold in Toronto by the Automobile and Supply Company, and it is understood additional orders for these machines are pending.

The Canada Cycle and Motor Company and the National Cycle and Auto Company have issued a writ against Thomas B. Jeffries, of Kenosha, Wis., and the Automobile and Supply Company, of Toronto, to obtain an order restraining the defendants from importing into Canada or selling or disposing of motor vehicles or motors named "Rambler." They ask also for an account to be taken of the number of "Rambler" vehicles in Canada.

The Canada Cycle and Motor Company was originally an amalgamation of a number of bicycle companies, including the National Cycle and Auto Company. It is claimed that this company secured patent rights for Canada covering the name "Rambler" as applied to bicycles and automobiles, and also handled the "Rambler" bicycles made by the American Bicycle Company. The Canada Cycle and Motor Company is at present manufacturing a bicycle by the name of "Rambler," and through its title acquired from the National Cycle and Auto Company claims exclusive ownership in Canada of the name "Rambler."

The Canadian Bank of Commerce, Toronto, is using an electric runabout for carrying the daily supply of cash from the head office to the different city branches. Stored in a special compartment of the car is frequently from $35,000 to $50,000 in bills, silver and copper. Joseph Gregory, a messenger, who has been in the employ of the bank for eighteen years, drives the machine, and he is accompanied by Isaac Mowat, another employee. Each is armed. Formerly the work of delivering was accomplished by the use of a horse. Gregory says he makes the trip in less than an hour, while with the horse it used to take an hour and a half. In addition to delivering the supply to the branch bank, the auto is used to take the parcels of checks to the clearing house. In the courtyard of the head office a charging station has been installed, so that the machine may be in constant readiness for service.

OMAHA DEALERS PROSPEROUS

New Garages Building and Business Rapidly Growing.

Special Correspondence.

OMAHA, Neb., Aug. 24.—Omaha, the Gate City of the West, is at present enjoying an unprecedented era of prosperity along all lines, not the least of which is the automobile industry. With the city's boulevard system, being improved continually, the horseless vehicle is coming into greater popularity and demand with notable activity.

The Powell Automobile Co. recently changed the firm name to the Powell-Bacon Co., and this concern now occupies a model garage and salesroom. The new location is at No. 2024 Farnam street, and is located on the main thoroughfare leading from the business to the residence portions of the city. The company is agent for the Oldsmobile, White steamer, Winton, Locomobile and Woods & Baker electric automobiles.

NEW GARAGE OF THE POWELL-BACON COMPANY ON FARNAM STREET, OMAHA.

R. R. Kimball, another local dealer, is erecting a large garage and salesroom just east of the Powell-Bacon Company. The Kimball building will cost about $40,000, and is now nearing completion.

At Eighteenth and Farnam streets The J. J. Deright Automobile and Safe Company will erect a three-story building for their increasing business. The Deright Company has branch houses at Kansas City and Minneapolis.

"SEEING BALTIMORE" INAUGURATED.

Special Correspondence.

BALTIMORE, Aug. 24.—The first "Seeing Baltimore" automobile appeared on the city's streets a few days ago, and attracted a great deal of attention all along its route. The vehicle is a Packard, seating sixteen persons, and is operated by the Automobile Outing Company, which some time ago inaugurated a service in Druid Hill Park.

The route of the sight-seeing automobile takes in the rehabilitated burnt district, the home of the late Johns Hopkins, founder of Johns Hopkins University; the Peabody Institute, the principal clubs, Washington Monument and other places of interest historically and otherwise. Two hours are consumed in making the regular tour.

RECENT INCORPORATIONS.

The Gurnsey Belmont Motor Transit Company, Fairview, O; capital, $10,000. Directors: D. E. Morris, Fred Johnson and J. W. Acton.

Chattanooga Automobile Company, Chattanooga, Tenn.; capital, $10,000. Incorporators: Charles Forstner, J. C. Forstner, W. S. White, J. L. Foust and A. S. Dickey.

Stover Automobile Company, Freeport, Ill.; capital, $50,000. President, D. C. Stover; vice-president, W. A. Hance; secretary, P. S. Stover; treasurer, J. F. Smith.

Nashville Motor Car Company, Nashville, Tenn.; capital, $10,000. Incorporators: Dr. Charles Brower, E. A. Lindsey, J. W. Handley, D. R. Dorris, E. C. Andrews and M. S. Pilcher.

The Holmes & Childs Motor Company, Camden; capital, $25,000. Incorporators: William H. Childs, Frank C. Holmes, H. A. Rantz, John H. McCormick, Wilfrid B. Wolcott.

Automobile Hire & Sales Company, New York; capital, $10,000 manufacture and sell automobiles. Incorporators: George A. Wingate, Arthur L. Hurley and A. Berton Reed, all of No. 20 Nassau street, New York.

The Alaska Automobile Transportation Company, Olympia; capital, $300,000; to engage in the operation of automobiles from Nome, on Bering Sea, to Solomon City, a distance of thirty-two miles, and to other points.

North Jersey Automobile Club, registered office, Paterson; agent in charge, Frank Van Cleve. Trustees: George A. Post, Frank R. Reynolds William G. Norwood, Christopher Horandt, Fred A. Baer, Frank Van Cleve. The club is to maintain a social organization for owners of automobiles.

The White Vanderbilt cup racer is not yet completed, but it will probably be assembled and tried out on the roads some time within the next two weeks. Walter White, who has charge of the developing of the machine, is in somewhat of a quandary as to where the car can be tried out around Cleveland. It is not known who will drive it in the race. Mr. White has been overwhelmed with applications, but as none of the applicants is familiar with the handling of a steam car it is probable that some of the factory employees will be permitted to handle it.

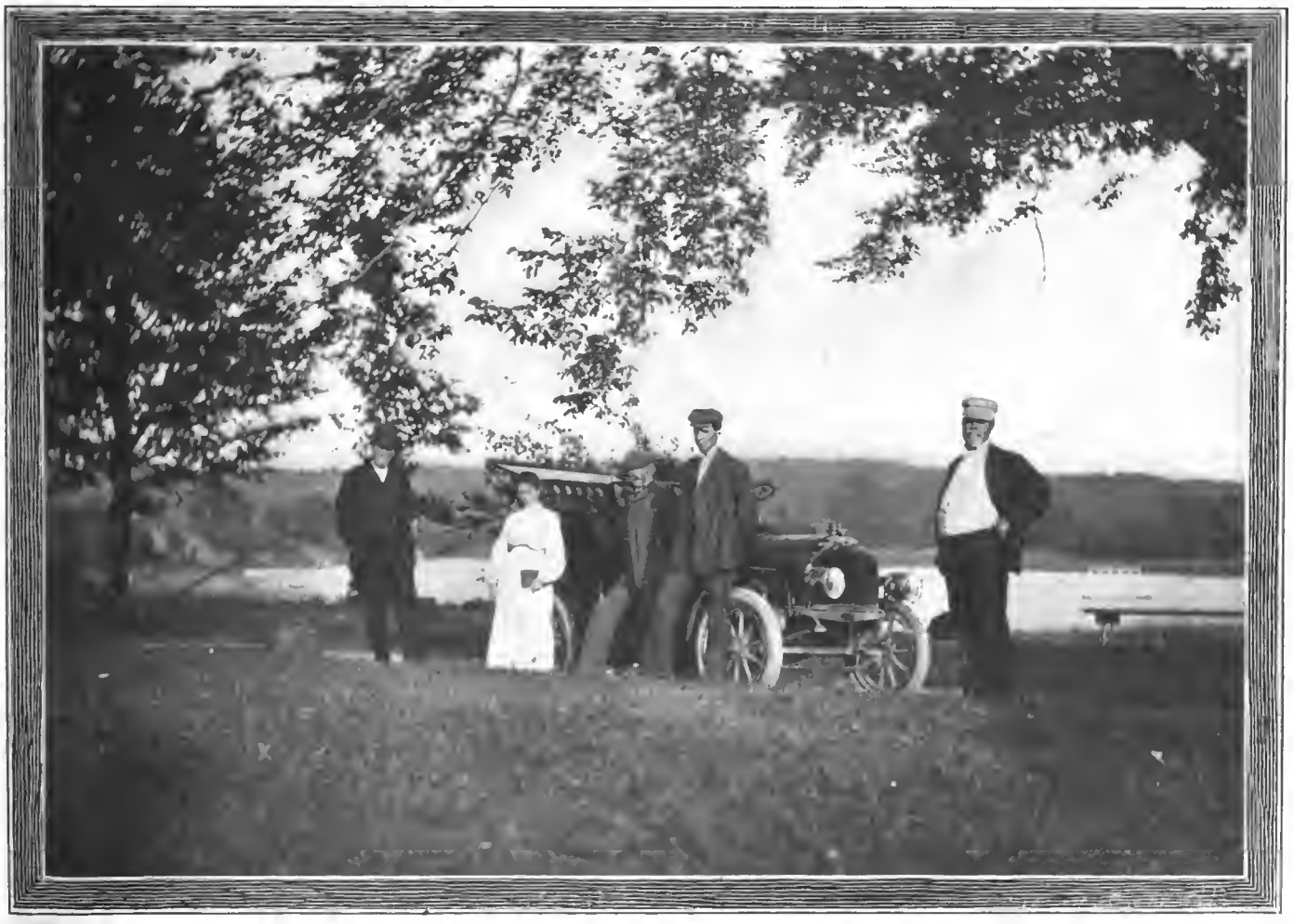
THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, SEPTEMBER 7, 1905—CHICAGO No. 10

SELDEN HOMESTEAD IN CONNECTICUT.

Special Correspondence.

HADLYME, CONN., Sept. 1.—When Henry R. Selden left this town in 1832 to seek his fortune he went away in an ox cart. His son, George B. Selden, of Rochester, came here a few days ago in an automobile, and on his trip from Hartford he beat a railroad train. The father went away to make his fortune, and the son had his made when he returned to the home of his ancestors. While here George B. Selden said that while there were quite a few ox carts still in this place, he could obtain no trace of the one that carried his father away. George B. Selden is the first known American patentee of the explosion engine automobile, so it was appropriate that he should come in a gasoline car. He might not be inappropriately called the patron saint of the Association of Licensed Automobile Manufacturers. On this trip he was accompanied by his sons, Henry R. Selden and George B. Selden, Jr., and by Everett Selden Geer, of Hartford, a cousin.



William Selden George B. Selden, Jr. George B. Selden Everett Selden Geer.

FAMILY GROUP AT THE SELDEN HOMESTEAD IN HADLYME, CONN., INCLUDING THE NOW FAMOUS INVENTOR, GEORGE B. SELDEN.

The present owner of the Selden homestead is William Ely Selden, a venerable man who takes pride in the old property and is much interested in the fine lawn about the place, which has been cared for by members of the family for two hundred years. The old gentleman hardly knew what to say when one of Mr. Selden's sons began to do "stunts" on the lawn with the auto. It was supposed that William Ely Selden would be horrified when he saw an auto dashing up to his place on Sunday, as he had never even used the boats in the cove nearby on the Lord's day.

The Selden genealogy goes back to Thomas Selden, of Kent, England, who was born in 1600, and who came to Hartford with Thomas Hooker. He had two sons. Thomas, who was killed in the first Deerfield massacre in 1680, and Joseph. For distinguished services in the Indian wars Joseph was given some territory in this place by the Colonial government, and in 1692 he settled here. The property has always been in the possession of the family, and has always been transferred by will—never by deed. They say they "take the will for the deed."

When Henry R. Selden, the father of George B., left Hadlyme in 1832 he traveled by ox cart to Saybrook Point, on Long Island Sound, whence he sailed in a schooner to New York City. From there he went by boat to Albany and on to Rochester on an Erie Canal boat—at a speed of two miles an hour. He became a judge of the Court of Appeals of New York State, succeeding his brother on the bench. When his son, George B., grew up he studied law also, and was practicing at the time he applied for the patent that has become famous within the last three years. He was never engaged in mechanical work.

In the Probate Court in Hartford Mr. Selden saw the records of the visit of Thomas Selden to that city with the Rev. Thomas Hooker. While looking over the graveyard here the tombstone of Joseph Selden was found. Mr. Selden is going to have the graveyard cared for, and will erect a suitable monument to his ancestors. The cemetery has been neglected for many years, and one of the residents recently buried a gray horse in it. He said it was "easy digging," and he did not think he had committed a nuisance. Some of the residents said they did not think there was anything in the statutes which prohibited a man from burying a horse in a cemetery. Mr. Selden is going to have the matter investigated.

Mr. Selden has secured from Washington all the maps issued by the government to assist him in his automobile touring. He started from Waterbury to go to Middletown, and when he supposed he was nearing Middletown he saw the East Rock of New Haven towering over him. This mistake caused him to lose a dinner engagement; he sent for the maps right then. Now he has no fear of getting lost on any road in this part of the country.

Unique Ideas in Boston Motor Mart.

Twenty-one Separate Auto Stores Communicate with a General Garage—Every Modern Device for Convenience and Safety Adopted.

Special Correspondence.

BOSTON, Sept. 2.—There is now building in Boston, on the five-sided block bounded by Columbus avenue and Eliot, Pleasant, Tennyson and Church streets, in the heart of the automobile district, a structure which, it is believed, will be without a peer in the world among buildings devoted entirely to the automobile business. It will be called the Motor Mart, and when completed this fall will represent an investment of upwards of $1,250,000. The building will cover an area of 47,392 square feet, and encompassed within the five walls will be a garage with accommodations for from 300 to 400 cars, equipped with every convenience that manufacturers, dealers, owners, engineers and architects have been able to suggest. In addition to the garage there will be under the same roof twenty-one stores with storage and show rooms and repair shops, all independent of the garage facilities.

This magnificent building to be devoted to automobiles is being constructed by the Eben D. Jordan estate, of which Eben D. Jordan, head of the great Boston department store of the Jordan-Marsh Company, is the chief representative. Mr. Jordan has been and is a great lover of the horses, as his success with the hackney horse at shows in all parts of America demonstrates, and it was only a few years ago that he took up automobiling. It was after a trip abroad that he brought to America a Napier car, one of the finest and most luxurious that had then appeared in Boston. How much his conversion to automobiling had to do with the conception of the Motor Mart is unknown, but early this spring Mr. Jordan came to the decision to use the block of land belonging to the estate on the five streets mentioned for an automobile headquarters. It was then covered with many small buildings, many of which were used as automobile sales rooms.

A canvass of the Boston dealers revealed the fact that most of them were occupying poor quarters wholly unsuited to their business, and that they generally favored a building in which the business could be centralized. Ninety per cent. of the successful dealers approved the selection of the Jordan plot as the location for such a structure. Edward T. Barker was selected as the architect, and dealers, manufacturers and others, representing all branches of the auto industry and sport, were consulted, and all their suggestions were taken into consideration in planning the Motor Mart.

The building will consist practically of three stories, and every part will be fireproof. Its total height above the street will be fifty feet. Reinforced concrete is being used for floors, beams, columns and walls, and all the street-fronts will present an almost unbroken series of plate glass windows. Where the concrete is exposed to the weather it will be encased in galvanized sheet steel. The interior of every story will be divided into a number of fireproof rooms, and in every way the danger from fire will be minimized.

In the basement there will be a space of 7,000 square feet devoted to boilers and engines for heat, power and lighting. The engines will furnish power for two large automobile elevators, a passenger elevator, the compressed air system, ventilation, and to drive machinery in the repair shops. The building will be heated throughout by steam. There will also be in the basement, separated from the engine room by fireproof partitions, doors and a stairway, a large room devoted to the storage of lubricating oils, gasoline and kerosene. A ten-barrel battery of Bowser tanks will be buried in the earth beneath the oil room for gasoline storage. Lubricating oils and kerosene will be stored in steel tanks. For all these tanks there will be filling pipes running from outside the building, so that they can be filled from the street, and from the tanks supply pipes will connect with pumps on the floors above.

On the first or street floor will be the twenty-one stores, entirely separated from each other and from the garage, and facing on the principal streets. These stores will be eighteen feet wide in the clear, and with an entire front of plate glass, offering an admirable opportunity for the display of machines. All are to be supplied with ample closets for clothing, lavatory facilities and the like, and the entrances will be so arranged that cars can be driven directly across the sidewalk onto the granolithic floors of the stores. The walls, floors and ceilings of these stores, in common with the rest of the building, are to be composed entirely of unburnable material, such as concrete, manufactured stone and steel, and therefore a possible fire in any part of the structure would result only in breaking the glass and damaging the paint, but would not interfere with the occupants or the business in any other part of the building. As the floors of the stores are to be laid directly upon the earth, without any space below, there will be opportunity for installing buried gasoline tanks, so that each

tenant may have an independent supply of fuel for his cars.

The remainder of the street floor is to be devoted to the garage, the area for this purpose being 20,000 square feet, divided into three principal apartments by fireproof walls and doors which will remain closed except when opened for the passage of a vehicle. There are to be two entrances to the garage for vehicles and one for pedestrians. The main entrance will be at the most prominent angle of the building, at the junction of Columbus avenue and Eliot street, facing on Park Square. This entrance will consist of two driveways, separated by a curb and guarded by a gate, so that vehicles will enter on one side and leave on the other. It is planned to have attendants to check all machines entering and leaving. The other entrance for vehicles is to be on Tennyson street in the rear, and will consist of a series of full-width doors opening directly on the sidewalk. The entrance for foot passengers is planned to be on the Eliot street front, and this will be supplied with convenient waiting rooms, telephones, booths for the sale of newspapers, etc., a stairway leading to the upper stories, and the entrance to the passenger elevator.

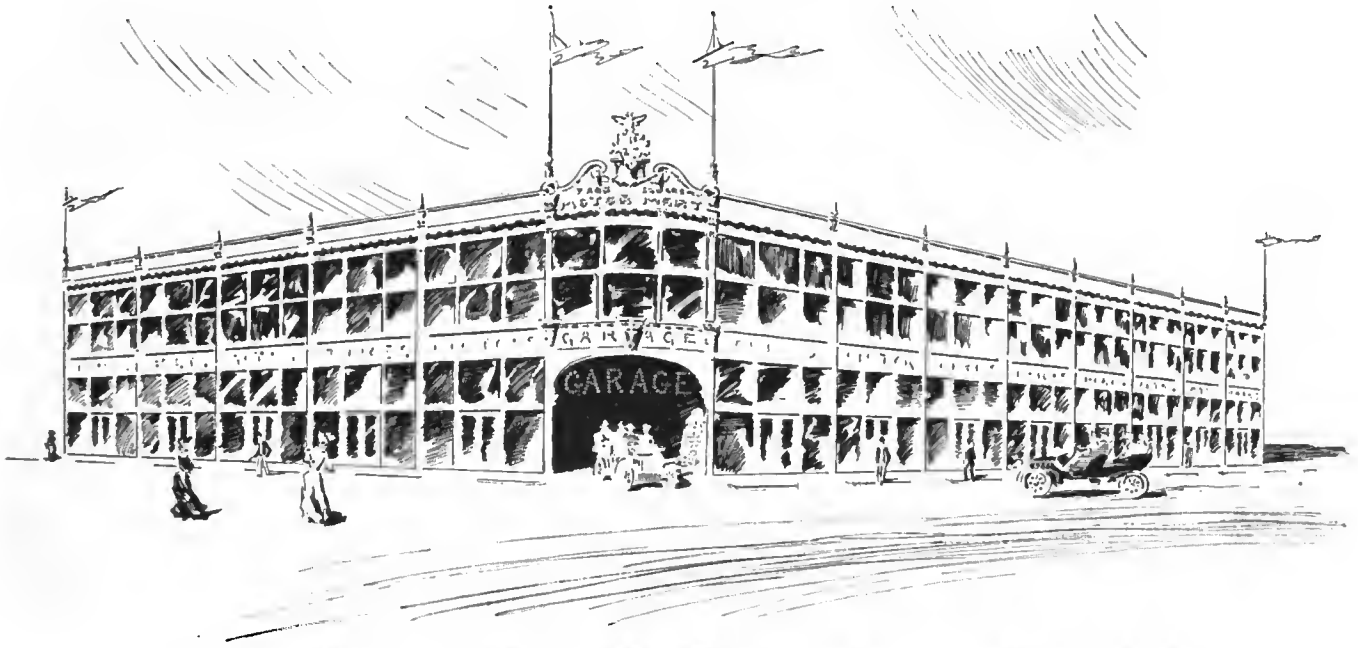
The garage proper is to be equipped with two rapid elevators, which together will have a capacity of three cars. They are to be placed convenient to the entrances and to the different sections of the garage, and near at hand will be turn-tables to facilitate the quick handling of cars. On the Tennyson street side of the ground floor will be placed the filling room. Here are to be pumps leading from the oil tanks in the cellar. There will also be tanks mounted on wheels and equipped with pumps, so that they may be run to any part of the garage, or out upon the sidewalk, and so supply oil and gasoline by coupling directly to the tank in a car, thus avoiding leakage and exposure. All the tanks will be of the self-measuring type. Near the filling room there is to be a large washing space, provided with swivel hose connections, drains, and hot and cold water. A hydraulic jack to withdraw and handle the heavy storage batteries of electric vehicles is to be another convenience, together with special rooms for cleaning and charging batteries. A complete system of hand lights and a compressed air system for inflating tires and cleaning cushions and robes will be features of the garage. It is intended to keep the gasoline, steam and electric vehicles in separate divisions of the garage.

On the second floor of the Motor Mart will be a garage similar in size and equipment to that on the first floor, with the same arrangement of compartments and fire doors. On the Tennyson and Pleasant street corner of this floor are to be lounging and wash rooms for chauffeurs, and a storage space; also from 4,000 to 6,000 square feet of space to be devoted to a complete and perfectly equipped Turkish bath. On the Eliot street frontage will be a section devoted to offices equipped in every way like those of a modern office building; toilet rooms and waiting and locker rooms for men and women tenants, employees and garage patrons. The rest of this floor will be separated into fireproof sections above the stores, designed for use as repair shops, store rooms or show rooms. They are to be supplied with wide doors, opening upon a broad driveway in the rear, through which cars may be run to and from the elevators. The entire building will be lighted by electricity, and an interior telephone system will permit connection with the long-distance telephone from any part of the building. In the rear of the second story are to be a series of doors opening above the sidewalk, and so arranged with chain tackles and hoists that in case of necessity cars can be lowered directly into the street from the upper stories of the garage.

The plan of the third story of the garage is similar to the first and second, with which it will communicate by the elevators and convenient stairways. The space outside the garage is devoted to a locker room for chauffeurs, a large and completely equipped public repair shop, and sections which can be rented with the stores for repair shops and storage. As on the floor below, a wide interior driveway will permit the handling of cars between these shops and the elevators of the garage.

The concrete work on the first story of the Motor Mart is now rapidly approaching completion, and the builders are under a heavy forfeit to have the structure finished by November 15. Some of the principal stores will be ready for occupancy by November 1. Nearly all of the stores are already rented to leading automobile and sundries houses. It is stated that the applications for space have been so numerous that the trustees have been able to select their own tenants and have taken only the most representative. The management of the entire building is to remain in the hands of the Jordan trustees, and the garage is to be operated in a wholly impartial manner, the aim being to give the best possible service. A corps of trained experts is to be employed, and all the patrons, whatever the make of their machines, will be assured responsible services, it is said. Garage management is being studied closely and various systems considered. From these the most satisfactory points will be chosen and put into practice.

Because of the unusual material and nature of the building the trustees have at



PEN-AND-INK SKETCH OF THE NEW BOSTON MOTOR MART, WHICH WILL OCCUPY AN ENTIRE BLOCK.

much expense contracted for all the different lines of work separately, so that they are dealing directly with the different contractors.

The location of the Motor Mart is exceptionally well suited for the purpose for which the establishment is designed. From Park Square, upon which the main entrance faces, wide streets radiate to all sections of the city and give upon the main thoroughfares leading to the suburbs and other cities. Boylston street, which passes through Park Square, is the main thoroughfare used by automobiles in entering the business section of Boston or in going to the southern, western and northern suburbs. Huntington avenue leads off of Boylston street. Columbus avenue, upon which one side of the Motor Mart faces, is a much-used automobile highway, and is the avenue upon or near which are located most of the automobile salesrooms of the city.

Ontario Auto Regulations.

The following summary of the new automobile regulations in Ontario, Canada, has been issued by the Provincial Secretary's Department:

AUTOMOBILISTS, ATTENTION.

A marker issued with permit, on registration, must be prominently and securely fixed on back of the body of the automobile.

The number on the marker must not be allowed to be obscured by dust.

From sunset to sunrise the marker must be illuminated by a lamp.

The marker number must be painted in black figures not less than two inches in height on the illuminated glass of a lamp to be carried prominently in front of the automobile, the glass being ground or stippled with white paint.

Not more than ten miles per hour within any city, town or incorporated village, and without the same not more than fifteen miles per hour.

Automobiles must not approach within 100 yards a horse going in the same or opposite direction at a speed more than seven miles per hour.

On crossings and bridges speed must be slackened.

Every automobile must carry a bell, gong or horn to warn persons approached.

No automobile race will be allowed on highways.

Motor must be locked when on the highway and not in use.

The owner of vehicle will be responsible for all infraction of act or regulations.

The penalty for infraction of the act or regulations is $25.

A consular report states that there is a brisk demand for motorcycles in Ireland, and that the English machines, which are almost exclusively used in the Emerald Isle, give excellent satisfaction.

Air-Cooled Motors in Principle and Practice--III.

By HERBERT L. TOWLE.

(*Continued from page 183, issue of August 17.*)

THE Mahoning car is built in two models, one with a single cylinder horizontal motor, planetary transmission and chain drive, and the other with a four-cylinder vertical motor under a bonnet, with shaft drive. The characteristic feature of the motor is the cooling arrangement, which is shown in the illustration. Square copper wire, 3-32 inch in thickness, is wound over a form, producing a helix of triangular section, which is cut into lengths. Each length is then strung on a copper ribbon, by which it is bound tightly on the cylinder, with the short leg of the triangle inside. The head is covered in a similar way with loops of the bent wire, and the whole is put into an electroplating bath, by which the makers state that the wires are firmly secured to the cylinder. As the individual portions of wire in contact with the iron are very short, the difference in expansion is small, and this may help to keep them from coming loose. The makers say that they secure 19 1-2 square inches of convecting surface for each square inch of the outside surface of the cylinder.

Something of a novelty is found in the cooling means employed with the Regas motor. Instead of fins or ribs, thin copper tubes are used, secured to the cylinders in the position shown by the illustration. The tubes are each 1 5-8 inches long by 1-2 inch external diameter. The cylinder walls are 3-8 of an inch thick and are drilled to the proper depth for each tube. The holes are then undercut slightly, and the tubes are held in them by expanding the inner ends. This latter process is accomplished by means of a nut in the form of the frustrum of a cone, which is dropped, large end first, into each hole before the tube is inserted, and the tube pressed home over it. A small button-head setscrew, threaded into the nut, is then screwed down by a screw driver introduced through the tube, forcing the nut away from the cylinder wall and jamming the tube tightly against the undercut walls of the hole, with the effect of dovetailing it in place. To assist the circulation, each tube has four longitudinal slots, with the edges turned inward instead of being cut away.

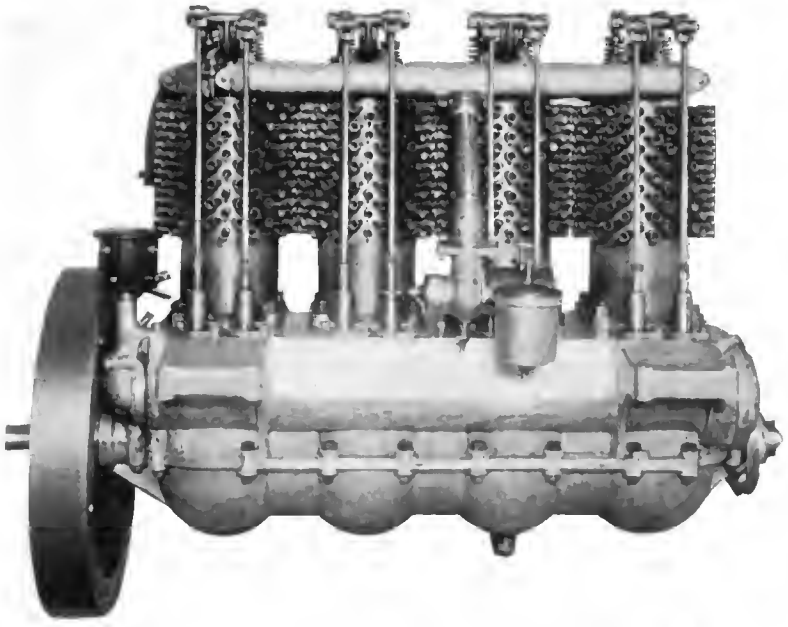
The makers report having used this construction for the past two years and a half with entire success. The cylinders are 4 1-2 inches bore by 5 inches stroke, and run with a compression of 60 pounds cold gauge. Both valves open downward into the cylinder head and are actuated mechanically. The photograph shows the carbureter side.

The Mahoning motor, like the Franklin, has an auxiliary exhaust port, uncovered by the piston, but no non-return valve is employed. The cylinders are 5 inches bore by 6 inches stroke, and the compression is given as 65 pounds gauge when cold. It is probably a little higher when running. At the normal car speed of twenty miles an hour, the motor runs 800 revolutions per minute.

The horizontal motor is supplied with air from a fan in front of the cylinder head, as in the Knox car, but this fan, instead of being driven by a belt, is driven by a leather-faced friction wheel bearing on the flywheel rim. The ratio of fan speed to engine speed is high, so that the fan runs 1,500 to 1,800 revolutions per minute, even at the slowest motor speeds; but the friction wheel is designed to slip when a higher speed is reached and when the air pressure on the fan blades correspondingly increases. Thus an approximately constant air supply is obtained even in hill work.

CYLINDER OF MAHONING AIR-COOLED MOTOR.

The Marion is another four-cylinder motor to be placed transversely under the bonnet and drive through a planetary gear. It runs normally about 1,000 revolutions per minute; the cylinders are 4 inches bore and stroke; and the compression is about 70 pounds or a little higher than usual practice. The cylinders are machined outside as



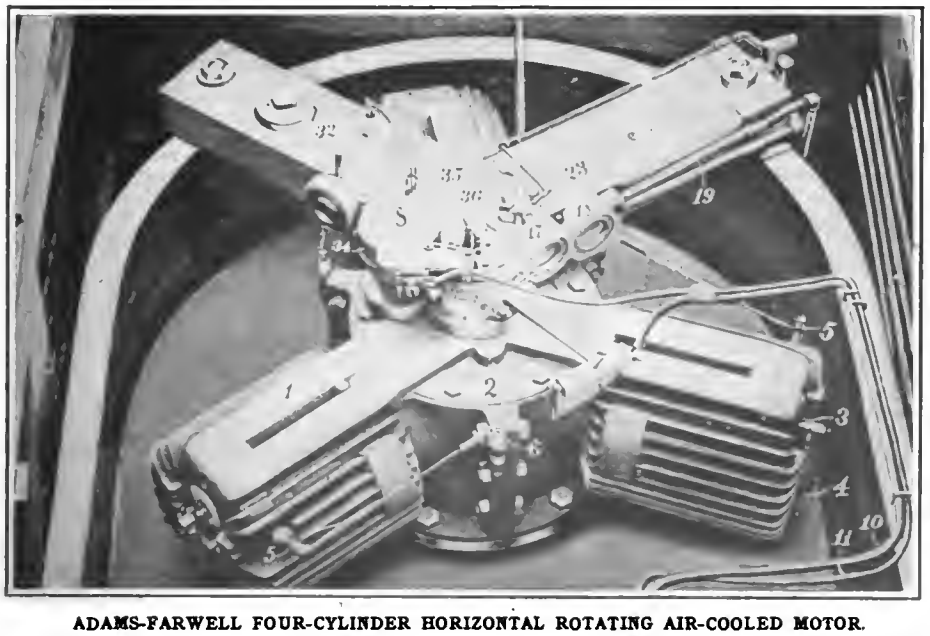
SIDE ELEVATION OF THE FOUR-CYLINDER REGAS AIR-COOLED MOTOR.

well as inside, and the cast flanges, which are much narrower than usual, are also machined, the makers stating that this greatly facilitates the cooling, probably by permitting a freer flow of air.

Aside from the external machining of the cylinders, the especial feature of this motor is the location and unusual size of the exhaust valve, which works in a dome in the cylinder head, and is as large as structural considerations will permit. The exhaust pipes from the cylinders are separated for some distance, and the whole arrangement permits a very free discharge of the hot gases. The writer is unable, however, to state how well the liability of such a large valve to overheat and warp or "burn" is met. The admission valves are located in ports at the rear of the cylinder heads, and are mechanically operated in the usual manner by direct push rods.

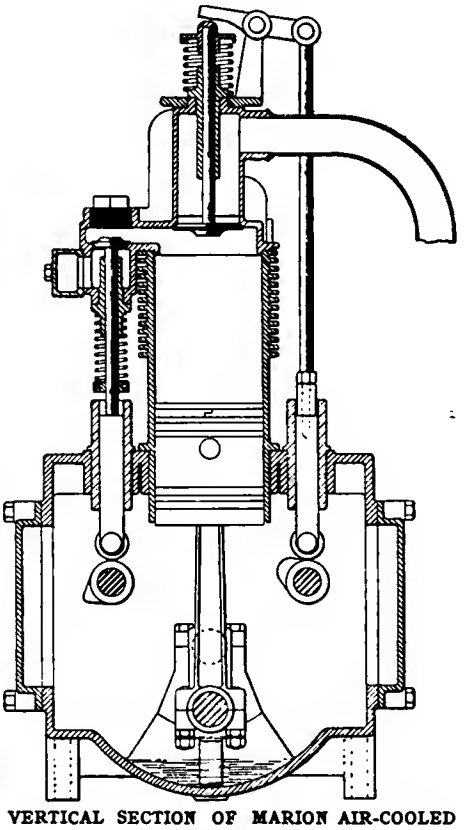
The Marmon motor has four cylinders, with heads and flanges cast integral and of 4 inches bore and stroke. They are set two and two at an angle of 90 degrees, like a pair of V's, this arrangement, though less suitable from the point of view of balancing, permitting freer access of the air to all four cylinders than if they were all in line fore and aft. The normal speed is given as 1,000 revolutions per minute, and an efficient fan is used. Transmission is by a spur planetary gear, propeller shaft and bevel gears.

The makers credit their success with this car largely to a very complete system of lubrication. In the large oil reservoir at the base of the crankcase is located a pump, which forces oil through holes drilled in the crankshaft to the crankpin bearings, from which part of it goes through the connecting rods to the wristpin bearings. The cylinders are oiled by the mist of oil thrown off from the cranks and moving parts. The makers say that about half a gallon of oil is pumped per minute to the engine bearings, the oil thrown off, of course, returning to the reservoir in the base. Direct splash is not used, as the oil level in the base is below the cranks. One renewal of half a gallon of oil lasts about 500 miles. So thorough a system as this should certainly do away with all lubrication troubles and make the bearings last almost indefinitely.



ADAMS-FARWELL FOUR-CYLINDER HORIZONTAL ROTATING AIR-COOLED MOTOR.

The motor of the Adams-Farwell car is peculiar in that, instead of the crankshaft revolving, it is held stationary and the cylinders revolve around it. The cylinders, three in number are spaced 120 degrees apart around a common crankcase, and revolve in a horizontal plane, a thrust collar around the shaft carrying their weight. The shaft has a single crankpin, on which all three connecting rods work, and the inertia



VERTICAL SECTION OF MARION AIR-COOLED MOTOR SHOWING LOCATION OF INLET AND EXHAUST VALVES.

of the cylinders is such that no flywheel is required. The motor is very light, being said to weigh only 230 pounds, and to develop 20-horsepower. The cylinders are 5 inches bore and 4 1-2 inches stroke.

The radiating flanges are cast integral with the cylinders, and are longitudinal instead of circular, the reason being that the cylinders act like a centrifugal fan, drawing the air in near the crankcase and throwing it outward on all sides. Unquestionably this should give very thorough cooling, and the high compression—90 pounds maximum—is no doubt justified.

The valves open directly into the cylinder heads. All are timed mechanically, and, in view of the centrifugal force to which they are subjected, very light springs are suffi-

cient to close them. Instead of throttling to control the speed, the inlet valves are variously timed to close near the end of the suction stroke or near the end of the compression stroke, the latter allowing part of the indrawn charge to be returned to the pipes and taken into another cylinder. The spark is automatically advanced to suit the speed.

The maximum speed of the motor is given as 1,000 revolutions per minute, and the gearing gives thirty-five miles per hour at 800 revolutions per minute. About the first thing to occur to most persons, on seeing the motor speeded, would be the possibility of its "bursting" like a grindstone run too fast; but I cannot say that I have ever heard of such a thing happening.

(To be concluded.)

NEW PUBLICATIONS.

Every person who has tried to recall some incident connected with a summer outing knows how difficult it is to recollect even important details without something to refresh the memory. Dates and times are readily forgotten, and the names of places visited and of persons met get lost with remarkable facility. In order to help the automobile tourist to keep track of the incidents of his tours, the Accident and Liability Department of the Aetna Insurance Company, of Hartford, Conn., has issued and is presenting to its policy holders "The Log Book of a Motor Car." The book contains a number of pages of valuable hints on automobile touring, the proper method of keeping the log, and on keeping track of expenses; a table of State registration and speed laws; blank pages for keeping the log, ruled in columns and appropriately headed; blank pages, properly ruled, for keeping expense accounts; blank pages for odd memoranda; pages for addresses, and blanks for accident memoranda. The log book measures 8 1-2 inches long and 5 inches wide; it is covered with a soft, serviceable cloth, and is provided with a pencil which slips into a loop in the edge of the cover. The book is intended for practical use by automobilists, and is edited by a practical automobilist—C. H. Gillette, late secretary of the A. A. A. The "Log Book" is not for sale, but is intended for free distribution among the policy holders and friends of the Aetna Insurance Company. It is quite a clever production.

It is reported that a new kind of rubber tree has been discovered in the island of Madagascar, said to contain much caoutchouc juice, which coagulates upon being boiled, producing 89 per cent. caoutchouc of good quality. The tree is called "Pirahazo" by the natives and attains a height of over 40 feet. It is found in groves in the northwestern part of the island near Amboyo and is marketed in Soolola. This caoutchouc has slight mineral ingredients. Reports of new sources of rubber supply are of almost daily occurrence.

Concerning the Recent Transcontinental Race from New York to Portland, Oregan.

By JAMES W. ABBOT, Formerly Special Agent U. S. Office of Public Roads.

(Concluded from page 212, issue of August 24.)

NOW to return from this brief history of the evolution of the Oregon trail to the town of North Platte, where we left *Old Scout* and *Old Steady*. It was at North Platte, as I have said, that the civil engineers who located the Union Pacific failed to agree with their predecessors (according to Horn). At this point the river which the old trail followed turns to the northwest, but the railroad follows a more westerly direction, and soon after leaving Cheyenne crosses the front range of the Rockies by a grade naturally very easy and now made extremely light by a tunnel. The ease of this pass is apparent from the fact that it took the boys less than five hours to make the nearly sixty miles across it and down to the town of Laramie on the plain at its feet. Although Cheyenne is 6,050 feet above sea level, the rise towards it is so gradual as to be hardly perceptible even from the train.

At Cheyenne we met with an experience which for a time was quite distracting. On the sketch map [August 10 issue, p. 151.] the heavily dotted line gives the route of the cars. It will be seen that this route follows the Omaha-Portland main line to Pocatello; then the Salt Lake-Butte line to Blackfoot, where it takes the Mackey branch of the Short Line to Arco. Here it leaves the railroad altogether, cutting across country to Bellevue on the Ketchum branch, and again going across country to Boise, on the Boise branch. From Boise it runs down the Boise River to the Snake, crosses it on a ferry, follows the Snake down a few miles to Ontario, and then shoots across country about 450 miles to the San Francisco-Portland line, a branch of which it hits at Lebanon and the main line at Albany. It then runs down alongside the main line to Portland.

As a salutary precaution we had arranged with the Standard Oil Company to distribute Mobiloil along the route selected, and to advise their agents so that none might be caught shy of gasoline. A description of the route selected was furnished the company, acknowledged, and advice received that the arrangement would be carried out accordingly. Up to Cheyenne this arrangement had worked with the ease and smoothness of a Corliss engine. *Old Scout's* and *Old Steady's* internal anatomies had been lubricated and fed with as much regularity and apparent satisfaction as had those of their riders. We were reposing the same confidence in Standard Oil as one feels in the almanac which regulates the sun, when, lo! without a warning symptom in the sky there were received concurrently at Cheyenne a letter and a telegram.

The letter was a copy of one which had been sent by an *amicus curiæ* to No. 26 Broadway, that suggestive number which has the same effect upon certain frenzied ones as water upon the frenzied dog. The following are extracts from the letter:

"With all due respect to the itinerary of the people interested in the transcontinental race, when they come to make the trip they will find it is physically impracticable, and, as a matter of fact, almost impossible for an automobile to pass through Vale, Burns and Prineville. On some of the roads through those towns the wagon track is cut so deeply into the surface that the body of an automobile would drag on the ground. It would not drag very long, because there would be nothing left to drag. Should those people adhere to the itinerary suggested you might tell them that it will be a good idea to take a balloon along, for they will need it and need it badly. It is sometimes almost impossible to get over the roads to Vale, Burns and Prineville in a light wagon with

A NEIGHBORLY CALL AT A RANCH HOUSE ON THE PLAINS OF THE FAR WEST.

two horses. They will not have difficulty very long, because there will be nothing left of them. In some parts of those roads to Vale, Burns and Prineville the sand is from six to eight inches deep. Besides all this, there is no water through the Vale, Burns and Prineville country, and these people will need a good supply for drinking purposes."

In view of this alarming advice the telegram from Standard Oil said that to save time and the situation generally they had taken the liberty to secure from their *amicus curiæ* a description of the correct route, and to distribute accordingly, and asked for approval of their action. How soothing this situation was to the nerves of *Old Scout* and *Old Steady* it requires no gift of clairvoyance to see. They had already been fortified by lurid imaginings of disaster painted by the loving lips of many a solicitous friend for weeks. When I gently suggested to them that that *amicus curiæ* had got mixed, and that the dismal picture he had invoked was really the one which applied to the route he had suggested, only more so, to the extent that his suggested route was impassable altogether and even a balloon would be of no avail, their countenances indicated great relief(?).

RANCH IN A SHELTERED VALLEY IN THE FOOTHILLS OF THE ROCKY MOUNTAINS.

WEATHER-WORN BOULDERS THAT MARK THE TRAIL ON THE NEBRASKA PRAIRIE.

I replied to Standard Oil: "Original route will be adhered to absolutely. Do you fall down on Mohiloil?" Now, Standard Oil could not be justly accused of being very emotional, but if there is one thing more than another which it views with abhorrence, it is the idea of "falling down." It is a pleasure to be able to say that, as in the parable the widow's cruse of oil never failed, so the tanks on *Old Scout* and *Old Steady* never were shy of Mobiloil or gasoline through any default in Standard Oil throughout the trip.

With reference to the letter of the gentleman in question I will say that he is a man for whom I entertain the highest esteem; that he attempted to act in good faith and kindness to all parties. He had relied upon information given to him by a man in whom he had confidence. No one knows the extreme difficulty of securing reliable information about distant roads like the man who has been through it.

Without going into the matter in detail it is sufficient here to say that on those portions of the road condemned in the letter the boys did not have the slightest difficulty of any kind, but made better average time than anywhere else west of Chicago.

Old Steady appeared to be affected by some peculiar mental lesion while in the State of Wyoming. Its first manifestation was when, after passing through the most distressing flood conditions for nearly five hundred miles, it went absolutely dry just on the outskirts of Cheyenne. It was obliged then to stop every few rods to cool off and reflect, while the sky grew darker and darker and the night later and later. It has been rumored that Megargel and Stanchfield occupied the time during these cheerful intervals in singing to a porterhouse steak in Cheyenne, which they had been discussing just previous to the affliction, an ode entitled "Thou Art So Near and Yet So Far." It is an interesting fact that, although neither car was provided with any exceptional facilities for carrying water, there was not the slightest inconvenience experienced by either for the lack of water at any other point whatever on the route.

The next manifestation of aberration was when it pulled out of Laramie, leaving behind a can of Mobiloil which had been sent expressly for it. Megargel has told how he purchased further on some gas-engine oil to take its place. I don't remember whether he told about the day he lost repairing the motor because of it.

The third and final manifestation was when Megargel and Stanchfield wandered off so far from the road and got so dismally lost, and disappeared for so long a period from the knowledge and observation of their fellow men as to excite suspicion that they had gone to again "discover" South Pass. I think it is the general experience of all automobilists that in a strange country it is easier to take the wrong road than the right one, and that where there is a railroad which can be used for a guide, and a local animate one is not attainable, it will nine times out of ten save time to keep the railroad in sight, even if assured that some other one at a greater distance is in better condition.

Perhaps the worst mistake made on the trip was in carrying on each car a box containing tools and parts. It was a cause of breakage and delay from beginning to end of the race. Concentrating material of small bulk but heavy weight in an enclosure of rigid shape inevitably makes a battering ram which is a constant menace to springs, frame, and all connected mechanism. Put a person weighing 150 pounds into an ordinary buggy, and its springs rarely yield to any shock. Put a chunk of iron of same weight into the bottom, and we know instinctively what will happen. Material of that kind is best carried by being divided into several portions, and each portion wrapped in a canvas or jute sack. The various portions should then be distributed as generally as possible, and not concentrated. The elasticity in the wrapping thus acts like a spring. Another mistake was in putting the acetylene receiver on to one side of each car, where it always tended to weigh that side down excessively. One of the secrets of making time with any kind of load consists in careful distribution, with regard to equilibrium and reduction of shock. Another mistake was

in not carrying at all times sufficient suitable clothing for protection against severe climate, which may be encountered at any season of the year in a transcontinental trip. All these matters just alluded to were incidents of hasty preparation and naturally limited storage capacity, and I mention them as a warning, and not as a criticism.

The arrival of *Old Scout* at the door of the Administration Building of the exposition and the delivery by Huss to President H. W. Goode of the letter from Manager Melville E. Stone just on the minute set for the opening of the convention was one of the most spectacular incidents which ever came under my observation.

It was the first automobile that ever crossed the Cascades to Portland. Was it not as important an epoch in the history of Oregon as the arrival of Hunt at Astoria already alluded to?

A mighty transformation scene is being enacted in the Northwest. The people are learning a little about it through this beautiful Lewis and Clarke Exposition. That the automobile will be strictly in it as a factor who will deny?

Vanderbilt Cup Race Preparations.

At a meeting of the Vanderbilt Cup race commission held last week in New York, it was decided to make both the eliminating trials for the American cars and the race itself the same length. The circuit is about thirty miles around, and this will be covered ten times in each event. The elimination trials take place on Saturday, September 23, starting at 5:30 o'clock in the morning. Saturday, October 14, is the date set for the Vanderbilt Cup race, the start on that day being set for 6:30 o'clock in the morning.

Nominations for drivers in the elimination trials must be made by this week, and the drawing for place will he held on Monday, September 11. The drawing for positions in the Vanderbilt race will he held on Monday, October 2.

As already reported by our Paris correspondents, Théry will not enter in the Vanderbilt race, and cable messages from Paris announce that the Richard-Brasier car will not he represented. According to the same authority, the French team will be composed of the following cars and drivers: Panhard, Heath; De Dietrich, Duray; Renault, Szisz; Darracq, Wagner; Hotchkiss, Le Blon.

At the meeting of the commission it was also decided to stick to the original decision to run the race left-handed or counter-clockwise. This feature of the arrangements has already been referred to in these pages, and it has been in the past week a subject of frequent discussion among the trade and in the daily press. There has been an abundance of assertion in the public discussion and a complete absence of argument.

A leading New York daily, in writing around the question, says: "A good modern racing machine, well balanced, can clip around any corner, no matter which direction, if only the right man has the wheel"—an indisputable proposition which has nothing whatever to do with the case. Another paper says: "No driver would be so reckless as to attempt to pass another car on a corner"—a statement which the experience of the last Vanderbilt race alone proves incorrect. Still another paper says that Walter Christie agrees that "cars should run to the left," when, as a matter of record, Mr. Christie's personal preference is that the races be run right-handed.

Two of the most sensational incidents of last year's race were the passing of Campbell by Gabriel at the Bethpage corner, and Croker by Clement at the Jericho turn. In the latter incident the cars were moving so rapidly that Croker tore a rear tire off in making the turn. The accompanying is a reproduction of a photograph taken at the Bethpage corner, showing Campbell in the lead in Mercedes No. 1, and Gabriel following in De Dietrich No. 2.

The facts in the discussion about running the race right or left handed are these: The 1905 Vanderbilt course has six "corners." If the race were run in clockwise fashion five of these would be taken right-handed. Under the decision of the commission to run counter-clockwise, five will be taken left-handed.

Under the road racing rules of the American Automobile Association, which sanctions the Vanderbilt race, "Operators must comply with the regulations for road traffic, which include:

"(1) Keep to the right when overtaken.

"(2) Keep to the left when overtaking."

In taking corners to the left, a driver is practically compelled to violate the rules of the road, for in cutting the corners he must cross the path of a following car, which, under the rules, keeps to the left. On the narrow roads of the Vanderbilt Cup course the danger of collision would be very great should the following driver stand on his rights and try to reach the corner first, so as to pass the car in front on the left.

On race tracks turns are invariably made to the left, but the comparatively great width of the course makes it possible for several cars to take a corner together, as frequently happens.

In the case of a right turn the leading car will naturally take the inside of the corner. No matter which of two cars approaching a corner takes the lead, there is no violation of the rules. Should the car on the right reach the corner first, it would still keep to the right, and should the car on the left get there first it would have the sanction of the rules of the road to cut in ahead of the following car.

It was a momentary violation of the rules of the road on the part of a motorcyclist that sent Frank Croker into eternity on Ormond Beach.

The Vanderbilt race will be run over a course not exceeding thirty miles in circuit, and there will be no controls. As there will be twenty starters on this short course, it is a fair assumption that many attempts to pass at corners will be made, especially by members of the foreign teams, who are veterans, and for whom the easy Vanderbilt course has no terrors.

If the race management could safely as-

Photograph by Hemment. Copyright, 1904, by The Class Journal Co.

PRACTICALLY SIMULTANEOUS ARRIVAL OF TWO RACING CARS AT THE BETHPAGE CORNER IN THE 1904 VANDERBILT CUP RACE. NOTE.—THIS CORNER IS A MUCH SHARPER ANGLE THAN PHOTOGRAPH WOULD INDICATE.

sume (which it cannot) that no car would be overtaken at a corner, it would make little difference which way the race was run. The probability that cars would come together at corners was so well recognized by the French officials in charge of the last Gordon Bennett race that they established two timing controls, the purpose of which was to prevent, as far as possible, the cars bunching during the race.

Many foreign races have been run left-handed, or counter-clockwise, notably the Ardennes circuit and the 1904 Gordon Bennett in Germany, and it is understood that this was taken into consideration by the commission in reaching a decision. The cases are not parallel, however. The German Gordon Bennett course was 85 miles in length, and there were only eighteen starters, and in the recent Ardennes circuit there were only fourteen starters over a 73-mile course In the German Gordon Bennett, also, the cars were sent away at seven-minute intervals, and in the Ardennes circuit at four-minute intervals, while in the Vanderhilt race only one minute will elapse between the departure of one car and the next following.

British races are usually run left-handed, as the rule of the road there is to "keep to the left."

Joseph Tracy, who will drive the Locomobile car, favors the running of both races right-handed. He has communicated with practically all of the men who are considered as probable drivers of the American cars in the elimination trials, with a view of ascertaining their preference, if any, as to the direction in which the race should be run. Following is the substance of the replies:

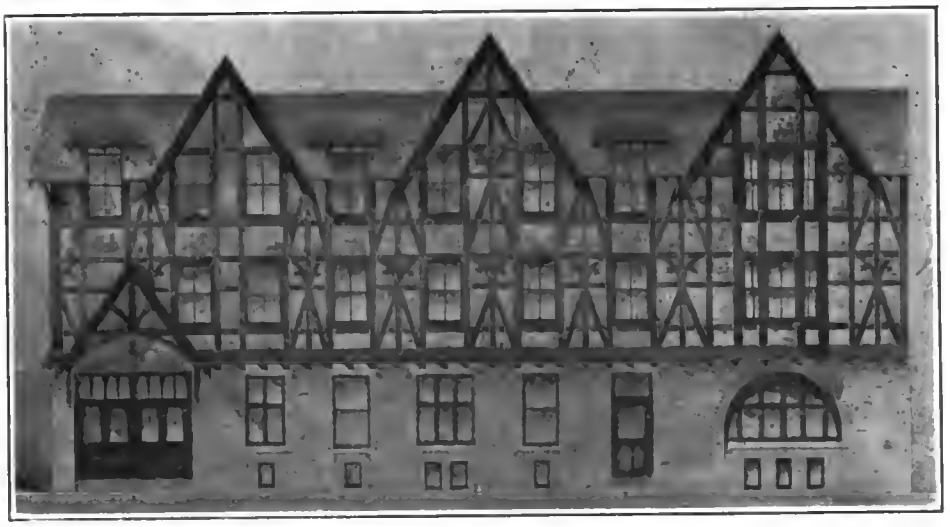
New York, Aug. 30, 1905.
After careful consideration, I would suggest to the honorable members of the Board that it would, perhaps, be safer and more satisfactory to all contestants to run the races to the right. W. C. CHRISTIE.
(Christie Car.)

Holyoke, Mass., Aug. 31, 1905.
Am not acquainted with course, so both ways look alike to me. TOM COOPER.
(Matheson Car.)

Cleveland, O., Sept. 1, 1905.
Prefer right-hand course.
R. JARDINE.
(Royal Car.)

Toledo, O., Aug. 31, 1905.
Right-hand course O. K. with me.
B. DINGLEY.
(Pope-Toledo Car.)

Syracuse, N. Y., Aug. 31, 1905.
Am very much in favor of right-hand course for Vanderbilt race.
W. F. WINCHESTER.
(Franklin Car.)



HOFBRAUHAUS IN PROVIDENCE, SECOND FLOOR OF WHICH IS OCCUPIED BY RHODE ISLAND A. C

Kokomo, Ind., Aug. 29, 1905.
I have been over this road or course several times, and from what I have learned think that the right-handed direction would be the proper way. FRANK N. NUTT.
(Haynes Car.)

Deal Beach, N. J., Aug. 24, 1905.
I consider that driving right-handed is much the better way.
MONTAGUE ROBERTS.
(Thomas Car.)

Toledo, O., Aug. 25, 1905.
*I am favorable * * * running the race right-handed, the same as the Gordon-Bennett was driven.* H. H. LYTTLE.
(Pope-Toledo Car.)

Indianapolis, Ind., Aug. 25, 1905.
I will prefer to drive right-handedly if it meets with the views of the majority.
C. G. FISHER.
(Premier Car.)

As the grandstand for the elimination trials and the cup race will be located at the summit of a slight grade, it is impossible to build it any larger than the one of last year, and the Vanderbilt Cup Commission has decided to allot the preferred boxes and parking spaces in the order that applications are received. There will be 123 boxes of five seats each, and 40 parking spaces. The boxes and parking spaces will sell at $50 each, and some 240 seats on the grandstand will be sold at $5 each.

The stand is to be located on the Jericho Turnpike, near Mineola, and the plans will be ready next week. So great has been the demand that almost all of the front row of boxes has already been sold.

Applications for boxes should be made to Alfred Reeves, chairman, grandstand committee, 29 West Forty-second street, New York City.

FRENCH TEAM FOR VANDERBILT CUP.

Special Correspondence.

PARIS, Aug. 26.—From information obtained last night at the Automobile Club of France, it appears that the club will not make any move in the matter of the entries for the Vanderbilt Cup race. The firms engaged can either run or withdraw from the race, as they desire. As all the constructors are perfectly willing to compete in the race, it follows that the full French team of two Richard-Brasier cars, a De Dietrich, a Renault and a Darracq will come to the starting line for the Vanderbilt Cup. The French contingent will probably be a very large one, for in addition to the drivers and their mechanics and the heads of the different firms, a large body of skilled workmen will be sent over. It is probable that they will all sail together on a French liner from Havre, the date being either September 16 or 23.

Home of Rhode Island A. C.

Special Correspondence.

PROVIDENCE, R. I., Sept. 2.—The Rhode Island Automobile Club has moved into its new club house near the corner of Weybosset and Garnet streets. The new quarters, which are directly across the street from the old quarters, make a remarkably attractive and convenient home wherein are to be found all essential conveniences. The club rooms occupy practically the entire second floor of the building, and consist of a large lecture and billiard hall, dining room, card and writing rooms.

The building is conveniently located in the downtown district, directly over a German restaurant, upon which the club can depend for culinary service, and it is the aim of the committee to develop the dining-room service to its highest point. The rooms will be elaborately fitted up, and the committee will be kept busy for several days in arranging the new furniture which has been purchased.

Long ago the club outgrew the suite of rooms which have been utilized as headquarters at the Crown Hotel, and the committee has been congratulated upon its good fortune in securing the lease of the new quarters. The housewarming will probably be postponed until the visit of the Massachusetts Automobile Club several weeks hence.

Plans for the Sixth Annual A.C.A. Show.

GENERAL information regarding the automobile exhibition to be held next January in the Sixty-ninth Regiment Armory in New York City, under the auspices of the Automobile Club of America, was made public last Saturday by the exhibition committee of the club. The show is called the "sixth annual automobile exhibition of the Automobile Club of America," because the first show held in this country was promoted by the club and the club has been identified with every national show beld in the Madison Square Garden since that year as one of the sponsors.

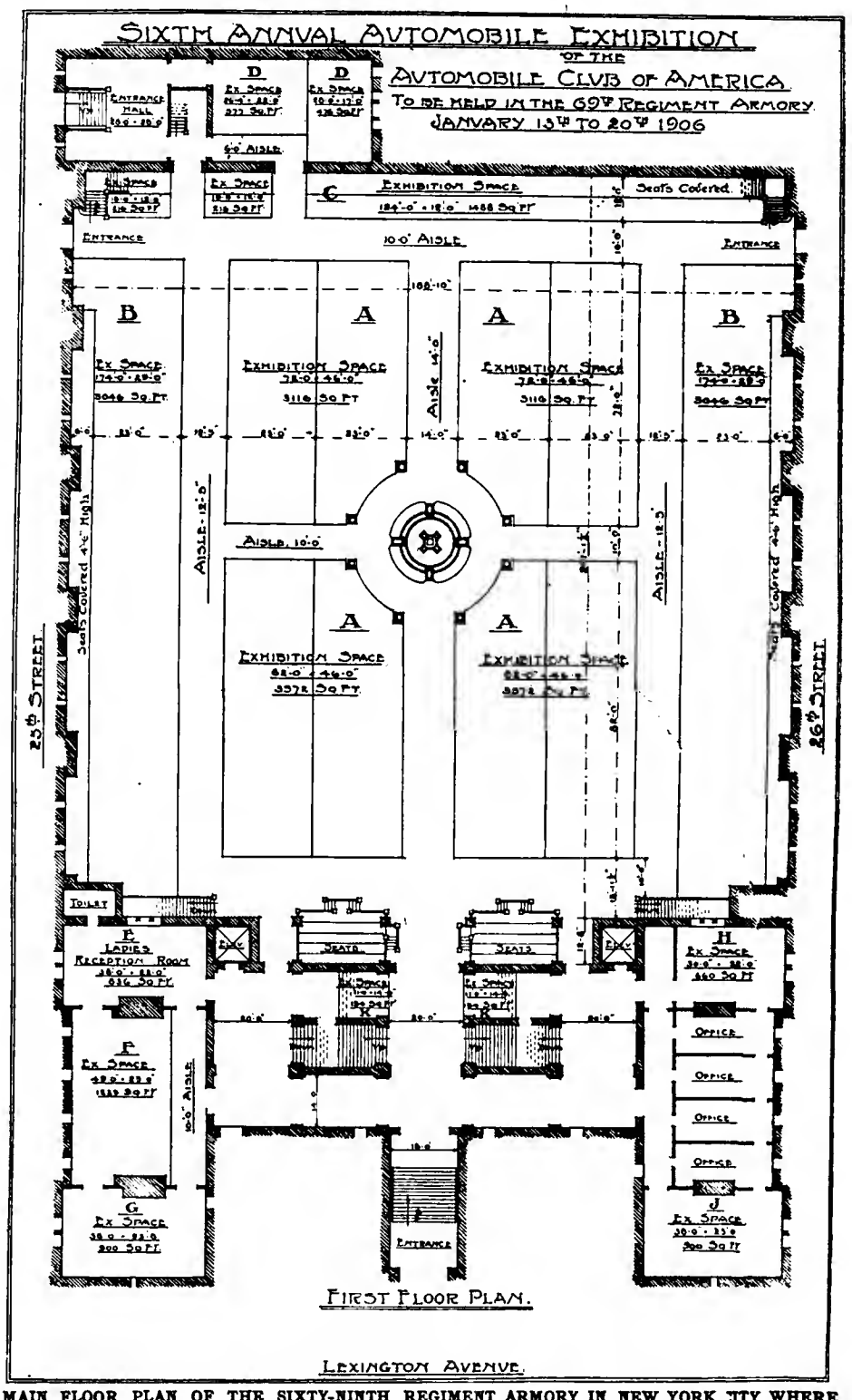
Although the decision of the club to hold a separate show next year was occasioned by the action last winter of the Association of Licensed Automobile Manufacturers in leasing Madison Square Garden for show purposes before the National Association of Automobile Manufacturers had renewed its lease of the building, and announced a decision to exclude from future shows all gasoline cars except those licensed under the Selden patent, no other reference to the matter is made in the announcement of the club beyond the statement that the club "has made liberal provision for an open exhibition of cars, parts and accessories of both home and foreign manufacture, and it invites manufacturers from all parts of the world, without restriction or qualification of membership in any organization, to exhibit their products."

The armory show will open officially at 8 P. M. Saturday, January 13, and continue until 11 P. M., Saturday, January 20, Sunday excepted. The exhibition is to be divided into sections for domestic and foreign cars commercial vehicles, racing cars. historical vehicles, cars for military and other purposes demonstrating the varied fields of usefulness of the self-propelled vehicle.

All space in the new armory building that is available for exhibition purposes will be used, including, besides the great drill hall, the gallery and adjoining rooms and rooms in the basement. The armory, which is now in course of erection, will be completed shortly before the date of the show. It will be one of the finest exhibition halls of its kind in the world, being a mammoth structure occupying all of the block bounded by Lexington avenue and Twenty-fifth and Twenty-sixth streets with the exception of a plot 100 feet wide fronting on Fourth avenue. The drill hall, which is not yet finished, will have a high, steel arched roof rising above the stone administration portion of the building. The exhibition spaces on the main floor aggregate 31,280 square feet, two square sections formed by the main aisles measuring 82 by 46 feet each and two others 72 by 46 feet. In the gallery, which is to be devoted to parts and accessories, and on the second floor of the administration building, which is on the same level and opens off from the gallery, there are exhibition spaces aggregating 8,775 square feet. In the basement there is 4,550 square feet of display space, and on the third floor of the administration building, or armory proper, is 3,008 square feet. Thus, the grand total of space available for booths is 47,613 square feet.

The accompanying diagram shows the arrangement of the main floor space and aisles. The construction of the building is fireproof throughout, and gasoline is to be strictly barred from the show, so there will be no danger from fire, and insurance rates will be low. There will be a smoking room, and no smoking will be permitted elsewhere in the building.

All applications for space, which should be made to Secretary S. M. Butler, of the Automobile Club of America, 753 Fifth avenue, New York, that are received up to noon of Saturday, October 28, will have



MAIN FLOOR PLAN OF THE SIXTY-NINTH REGIMENT ARMORY IN NEW YORK CITY WHERE THE SIXTH ANNUAL EXHIBITION OF THE AUTOMOBILE CLUB OF AMERICA WILL BE HELD, JANUARY 13-20, 1906.

ARMORY OF SIXTY-NINTH REGIMENT NOW IN COURSE OF CONSTRUCTION ON LEXINGTON AVENUE, NEW YORK CITY.

equal consideration; later applications will be given consideration after the first allotment has been made.

With the object of carrying out a harmonious scheme of decoration for the entire exhibition, and yet avoiding monotony, all decorations, signs and lights for spaces are to be furnished by the official decorator. These will consist of denim floor covering with suitable mouldings, iron railings for division of spaces, signs with rows of lights across the top, background coverings, and draperies, all textile fabrics being fireproofed.

A feature that will be appreciated by the public is that no carpentry or noisy work of any kind will be permitted after 6 o'clock on the opening night, the exhibition committee requiring that exhibitors arrange their stands on Friday and Saturday, completing the work by 6 P. M. on the second day. Once in place, all exhibits must remain to the end of the following week, except by special permit to remove them.

For three days prior to the opening of the show, and during the week of the exhibition, a bureau of information will be open in the main lobby, where mail will be received and delivered and all questions pertaining to the show answered. A register will also be provided, and it is particularly requested that all manufacturers and agents who visit the show enroll their names and addresses, so that they may be found by anyone desiring to make appointments.

The net profits of the show, over and above expenses, are to be divided as follows: One-third to the Sixty-ninth Regiment, one-third to the Automobile Club of America, and one-third to the exhibitors in proportion to the amount of rental paid by each.

Rates of rental for the week are $1.25 per square foot on the main floor, $1 per foot in the gallery and adjoining rooms, and 75 cents a foot in the basement.

The exhibition committee consists of Gen. George Moore Smith, chairman; William Pierson Hamilton and Alan R. Hawley.

Plans for Garden Show.

Some details regarding the exhibition of licensed cars in Madison Square Garden were settled at a meeting of the Association of Licensed Automobile Manufacturers held last Friday, following the submission of a report by the show committee which met the day before. The show committee reported upon an allotment of spaces, but the final disposition of space will not be made until the September meeting.

A general scheme of uniform and harmonious decoration will be carried out under direction of the show committee. The cars exhibited will be classified so that visitors will know where to look for certain types. The main floor is to be devoted to gasoline and steam cars, the restaurant to electric pleasure vehicles. the basement to commercial vehicles and bodies, the galleries to motors and accessories and the concert hall to tires.

At the same meeting of the Association a report was made, stating that the Association Patents Company had perfected its organization, and its charter had been filed at Albany.

The general use of acetylene gas lamps on automobiles makes information regarding the production of calcium carbide particularly interesting to automobilists. Robert P. Skinner, United States Consul General at Marseilles, France, states that there are in France eleven concerns capable of producing a combined total of 40,000 tons of carbide annually. The actual amount of carbide sold during 1904 was, however, only 18,000 tons. The average yield of gas is approximately 39 1-2 gallons per pound of carbide. The carbide is packed in metal cases containing 110, 143 and 220 pounds; the price to the retail dealer is slightly less than $70 a ton. French manufacturers of carbide and of compressed acetylene gas are so protected that the question of foreign competition does not enter their calculations at all. It is said that the manufacturers of carbide reduce their prices whenever they can do so without inconvenience to themselves.

They're telling of a Jackson county farmer who found an auto horn in the road and took it home and taught his chickens to recognize its honk as their feed call, says the Mt. Vernon *Register*. Instead of calling them in the old-fashioned way, the farmer or his wife would blow the auto horn. One day an automobile passed the farm going about fifteen miles an hour with horn tooting. The chickens near the house took out after the auto, and fourteen hens and three roosters ran themselves to death behind the machine.

American automobiles being built for bad roads, are well suited for use in Ireland, where the roads average much below the English and French standards.

Eight-Day Tour for Pyrenees Cup.

Special Correspondence.

TOULOUSE, FRANCE, Aug. 25.—The last touring event of the season to be held in France is at present agitating the whole of the southwestern country bordering on the Spanish frontier, where automobile events have never been numerous. The Pyrenees Cup contest has suddenly aroused the enthusiasm of the population of the Midi.

No fewer than sixty-four automobiles were present at Toulouse for the start of this eight-days' tour through the beautiful mountain country of the Pyrenees. They are divided into six classes by prices, as follows: 1. Open cars, $1,000 or less; closed cars, $1,200; eight starters, all of 8 horsepower. 2. Open cars, $1,600; closed, $1,800; six starters, varying from 8 to 12 horsepower. 3. Open cars, $1,600 to $2,400; closed, $1,800 to $2,600; fifteen starters ranging from 10 to 16-20 horsepower. 4. Open, $2,400 to $3,600; closed, $2,600 to $3,900; one starter in closed section and eighteen in open class. 5. Open, $3,600 to $4,800; closed, $3,900 to $5,200; eight open and one closed car started. 6. Open, $4,800 and up; closed, more than $5,200; six open and one closed car started.

An elaborate system for determining regularity of running has been adopted. The route is divided into sections, at the two ends of which are placed official timers of the Automobile Club of France. The average times are figured from their records. The road is considered as being divided into three sections: (1) Hills; (2) level or undulating ground; (3) descents (not considered in the classification). High speeds are forbidden on the descents, and it is particularly forbidden to overtake a car on a descent. On the other hand, it is understood that the speed on descents will not fall below twelve miles an hour, drivers running at a lower speed being in danger of being penalized by the average of this low speed being considered as time on the level and included in the classification for average speed on level ground. Each day the speeds on level and hills are totaled and the average obtained. To the average general speed on hills is given the coefficient 2, and the coefficient 1 to the average general speed on the level. The two numbers thus obtained are totaled, the resultant being the coefficient of the speed of the car. The first car obtains an allotment of 400 points for each day's journey. It thus follows that the speed on level sections must be exactly double the speed on hills to obtain the maximum number of points.

Other matters on which the classification is based are: Fuel consumption per ton-kilometer, allotted 400 points; speed over a distance of two kilometers, 600 points, an allowance of one-sixth of the time being made for closed cars; braking tests, 400 points; starting tests, both on the level and on hills, 200 points; elegance and comfort, including suspension, vibration, absence of noise, protection against dust, rain, etc., 500 points; mechanical features, including easy change of speeds, accessibility of parts, protection of mechanism from rain and dust, control appliances, absence of smoke and ease in starting, 500 points; the same maximum number of points is also granted on the condition of the car at the finish of the tour.

The first day's journey, over a distance of 172 miles, the longest single run on the tour, was from Toulouse to Perpignan, with a fixed neutralized time of an hour and a half for luncheon. No very difficult hill climbs were included in this tour, and nearly all finished the run. Precautionary measures on the road were of a most minute nature. In addition to the signs of the Touring Club of France indicating every turn, every approaching village, hamlet, bridge, descent or ascent, special flags of different colors gave the signal to stop or increase speed wherever necessary. Unfortunately, notwithstanding all this, one fatal accident occurred on this day's run. A C. G. V. car, driven recklessly and at an excessive speed by M. Albert, overturned after colliding with the stone pillar of a narrow bridge, inflicting slight injuries to the driver and two other persons, but so seriously wounding a banker who was in the car that he died the next day.

The second day's journey, 122 miles, was from Perpignan to Foix, and included a stiff climb up Mont Louis, 1,565 meters high, a descent to a 1,140-meter level, and then a climb up again to an altitude of 1,931 meters, followed by a long descent to a 400-meter level. Of the sixty starters, fifty-four finished the day's tour.

Fifty-five cars started on the third day's run, a distance of 95 miles, and notwithstanding rain and consequent greasy roads, all finished by nightfall.

On the fourth day all the competitors stayed at Luchon, where municipal festivities of all kinds were indulged in.

The fifth day's event, from Luchon to Cauterets, started under leaden skies and a pouring rain which rendered the mountainous roads so dangerous that the committee thought it advisable to neutralize all the 72-mile course excepting the last 8 miles, which was taken as a hill-climbing contest. The rain having cleared off soon after the start, the magnificence of the scenery was not lost; the greasy nature of the roads called for very careful driving in the mountain passes at heights of 1,400 to 1,550 meters, but the absence of speed prevented all accidents. In the towns and villages triumphal arches and bouquets of flowers greeted the passage of the competitors. Fifty-nine automobiles finished this day's run, only five cars having dropped out since the start from Toulouse—a wonderful record of reliability and regularity in view of the difficult mountain routes.

PICTURESQUE SCENERY THROUGH WHICH THE PYRENEES TOURISTS JOURNEYED IN FRANCE.

The sixth day of the tour was a run of 132 miles from Cauterets to Biarritz, which was finished by fifty-three competitors. It was a day of fast runs, and also of brake tests. None of the times have been made public, as it is not intended to give any idea of the position of the competitors until the tour is ended. The official classification for the Pyrenees Cup, a magnificent work of art of the value of $15,000, will not be published until several days after the close of the tour.

A cable dispatch from Toulouse under date of September 2 to the New York *Herald* announces that the prizes in the Pyrenees Cup tour were awarded in the Cours Dillon in the presence of Ministers Chanute, Gautter and Raun. The winner of the contest as a whole was M. Sorel, who drove a 40-horsepower De Dietrich, and the first prize in the team contest went to Maison. Brouhot & Vierzon. The winners in the six classes were: Class 1, M.

Bardin, 8-horsepower De Dion-Bouton; class 2, M. Didier, 10-horsepower De Dion-Bouton; class 3, M. Belleville, 15-horsepower Brouhot; class 4, M. Richez, 40-horsepower Brouhot; class 5, missing; class 6, M. Sorel, 40-horsepower De Dietrich.

German Cars Win the Herkomer Touring Contest.

Special Correspondence.

MUNICH, Aug. 19.—Of the seventy-nine cars that started Monday morning, August 14, in the three-days' touring competition through Bavaria, Wurtemberg and Baden, that completed the Herkomer Week, sixty-nine finished the tour last Wednesday night. Twenty-six of the number had made the whole tour without having any defects whatever. The weather was splendid throughout and there were no serious accidents, so all in all the tour has given great satisfaction to the competitors as well as to the organizers.

Early on Monday morning the cars left Munich in a cool, foggy atmosphere, piloted by the president of the touring commission, Doctor Nebel, who started half an hour in advance of the other cars, which left the city at 4 A. M. The fog soon lifted and permitted a faster pace than at the beginning. The first day's course was from Munich to Augsburg, Ulm, Urach, Freudenstadt and Baden-Baden, a distance of 371.8 kilometers (231 miles), which was covered by seventy-five cars, four that started having failed to complete the day's run. There was a stop at Ulm for breakfast, and at Urach the cars had to wait about an hour for the control to open, as the legal speed limit in Wurtemberg is only thirty kilometers an hour (18 2-3 miles), and the cars were run much faster. So there was plenty of time to take luncheon before starting for Freudenstadt.

The same thing occurred at Freudenstadt, the cars arriving too soon and having to wait at the control. The cars began arriving at the night control in Baden-Baden about 6 p.m. and continued coming in until 10 o'clock. They were greeted by an illumination and concert in the Kurpark.

On Tuesday 330 1-2 kilometers (208 miles) had to be covered, the route being: Baden-Baden, Stuttgart, Aalen, Battenburg (a lovely, quaint old place) and Nurnberg. Many stoppages were caused by punctured tires, but seventy-one cars arrived at Nurnberg where, as on the day before, they were locked in a garage until the following morning. The drivers were allowed to take their cars one hour before the starting time each morning. A banquet was given to the competitors at Nurnberg by the Bavarian Automobile Club, but the guests left early owing to fatigue from the day's run.

As the last day's run from Nurnberg to Regensburg and Munich was of only 234.9 kilometers (146 miles) the start was not made until 8 a.m. Seventy-one cars started and all but two finished at Munich. The first arrival was Clarence Gray Dinsmore, representative in Europe of the Automobile Club of America, on his 35-horsepower Daimler. He finished exactly at 2 o'clock, the time fixed for the arrival. Most of the other competitors followed in quick succession. The only woman driven in the contest was given a large laurel wreath in acknowledgement of her excellent driving. She was Mrs. Maud Manville, the English woman, who drove a Daimler car.

The winner of the Herkomer trophy was a German, Edgar Ladenburg, of Munich, who drove a 40-horsepower Mercedes. The prize of honor given by the city of Munich was awarded to H. Weingand, of Dusseldorf, who drove another 40-horsepower Mercedes, and third prize, a bronze figure donated by Doctor Magin, of the Bavarian A. C., went to Willy Poge, of Chemnitz, who also won the prize of honor given by Prince Ludwig Ferdinand von Baiern, with his 60-horsepower Mercedes. Fourth and fifth prizes were won respectively by Fritz Opel with a 35-horsepower Opel, and Fritz Werner with a 35-45-horsepower Clement. Ten other competitors were given Herkomer plaquettes for meritorious performances, and ten more were recipients of small silver shields.

Commercial Vehicle Trials in France.

Special Correspondence.

PARIS, Aug. 24.—The French commercial vehicle trials, which commenced July 27 and ended August 8, provided an enormous amount of technical data, a very complete and careful set of records having been kept. Fuel consumption was watched by M. Longuemare, whose task was a most difficult one. Because of the quantity of information that must be sifted and arranged, no official results of the trials have been announced as yet. Out of fifty-eight starters forty-eight vehicles finished at Paris and took part in a grand parade which wound up the event.

Pending the official announcement of the winning machines, it may be said that the trials have shown that the adaptation of light car lines to commercial work has been carried out better than ever before. It was proved that there is a large market for practical commercial vehicles of the light types.

America was not represented, which is much to be regretted; but the European countries represented showed signs of possessing more experience in commercial car work than France. The French cars, though smooth running and mechanically beautiful, gave the impression of being rather too frail for hard, every-day commercial duty.

The German A. C., encouraged by the success of the French trials, has announced a similar competition for commercial and public passenger vehicles, to be held, probably, between October 9 and 14. A number of cash prizes will be given to successful competitors. It is thought that this competition will be enthusiastically supported by the German manufacturers, whose interests have always been admirably supported by the club, and also by the buying puhlic and the German government.

New motor vehicles are constantly being put into service by various German concerns. The German War Office has recently opened a credit of $40,000 to cover the expense of the automobile corps, consisting not only of heavy cars, but also of light and fast motorcycles and other motor vehicles of intermediate types. The German army officers of the highest rank never fail to impress upon their men their favorable opinion of the automobile. For instance, Prince Leopold of Bavaria made a special point of attending, with all his staff, the trials of the N. A. G. military train. The effect of this was exceedingly gratifying to the trade in general, and, of course, to the makers of the machine in particular.

The N. A. G. train consists of three vehicles, including the tractor, which is itself adapted to carry a heavy load. The tractor carried, in the trials, five tons of oats, while the trailers carried a day's rations for 2,000 men, the total load carried being ten tons. This was six tons less than the rated capacity of the train.

Paris was, for a time, very proud of the electric postal vans described in THE AUTOMOBILE of June 15 last, and they were really a great improvement over the older methods of carrying the mail. A new system, however, has been placed in operation, consisting of a service of motor 'buses for postmen, each 'bus being capable of carrying twenty postmen and their loads of mail matter at a speed of twelve miles an hour.

It may be said that the city of Paris is still experimenting with motor vehicles, and it will douhtless he some time before any type is permanently adopted.

Auto Boat Fatalities.

This season has been an unfortunate one for French auto-boats. After the burning of the *Trefle-à-Quatre*, the sinking of the *Panhard-Levassor* and the unhappy ending of the trans-Mediterranean race, now comes the news of the loss of *La Rapiere*. This remarkable boat was a little more than twenty-six feet long, and carried a Panhard motor of 100 horsepower. She was awarded first prize in the Calais-Dover auto-boat race, covering the 51 nautical miles across the English Channel in 2:25:50. The prize was won on a technicality, however, for the English *Napier II.* actually made the fastest time, but was disqualified for passing the mark at the finish on the wrong side. The speed of *La Rapiere* in the Channel race was slightly better than 24 land miles an hour.

On August 21 *La Rapiere*, *New Trefle* and *Delahaye VI.* started in a 72-mile race on Lake Lucerne for the Lucerne cup. The lead was at once taken by *La Rapiere* and held until Kastamenbaum was reached,

when *New Trefle* forged ahead, the *Delahaye VI.* being in third place. In this order they took the turn around Schiller's monument. In passing the rock *New Trefle* passed so close as to almost graze it. The helmsman of *La Rapiere* attempted to do the same thing; but he was partly blinded by the spray thrown up by the leading boat and cut in too close, striking the rock with such force as to stave in the bottom of the boat. She at once sank in 650 feet of water.

M. Tellier, son of the builder of the boat, and M. Joubert, his mechanic, were rescued by a boat that happened to be near by. Owing to the great depth of water *La Rapiere* cannot be recovered, and her short and meteoric career is definitely ended.

The race was continued by the other boats, and was won by *New Trefle*, her average speed for the 72 miles being 25.1 miles an hour.

FOREIGN NEWS NOTES.

Entries for the Florio Cup race, to be run during Brescia week in Italy, on September 10, closed last week. The race is for cars of not exceeding 2,204 pounds over a course of 103 3-4 miles that will be covered three times, starting and finishing at Brescia. The entries are as follows: Five Fiat cars, driven by Lancia, Cagno, Nazzari, Gandani and Dr. Wellschott; three Itala, driven by Cetrano, Feebry and Raggio; two Isotta-Fraschini, driven by Le Blon and Truchs; five Mercedes, driven by Florio, Cortese, Marieaux, Gasteaux and Francis Terry, Jr.; three Darracq, driven by Hémery, Wagner and De la Touloubre; three De Dietrich, driven by Gabriel, Rougier and Duray, and two Bayard-Clement, driven by Bayard and Carlos.

A concession has been granted by Honduras for the establishment of a line of automobiles to run from San Lorenzo, the landing point on the Pacific for freight and passengers trans-shipped from Amapala, to Tegucigalpa, the capital. The road is rough and the ascent is steep at places, but it is confidently expected that the automobiles will give much better service than is now obtained from the tedious transportation on mule back. It is believed that freight automobiles will materially aid in developing transportation routes in Spanish America.

The Semmering Hill Climb, on September 17, promoted by the Austrian A. C. in the vicinity of Vienna, promises interesting sport, as besides the defender of the title, Braun, on his Austrian Gordon Bennett Mercedes, the Fiat's full team and a Richard-Brasier are expected to compete.

Experiments are being made abroad in the use of suction gas producers, using coal for fuel, in boats requiring motors of comparatively large powers. It is said that the experiments have been decidedly successful, the cost per hour for fuel being considerably lower than when gasoline is used.

Decorated car that won the handsome silver cup offered as first prize by the Athletic Field Association for the best decorated car in the automobile parade held August 17 by the Buffalo Automobile Club. The car, a Rambler, was owned and driven by Albert Poppenberg. It was illuminated from a storage battery under the rear seat wired to incandescent light globes in each of the roses on the top and sides of the car and distributed among the doves in front. Occupying the car with Mr. Poppenberg was Mrs. Henry Nagel, on the front seat, and the Misses Louise and Ida Poppenberg and Miss Melle Gates, all dressed in white. The judges who awarded the prizes were Mrs. A. H. Knoll, Mrs. J. B. Eccleston and Mrs. C. A. Stephens.

Letter Box

Solid Tires on Light Cars.

Editor THE AUTOMOBILE:

[260].—In an article in your Letter Box Department in the issue of August 24, reference is made to the use of solid tires, which would lead one to believe that they are unsuitable for use on light cars. This has not been our experience with the Swinehart tires, and we are happy to say that there are more than 3,000 converts to the use of solid tires of our manufacture. We inclose letters from customers who have used our solid tires on light cars with entire satisfaction.

THE SWINEHART CLINCHER TIRE & RUBBER COMPANY.

Akron, Ohio.

Following is a letter typical of those sent THE AUTOMOBILE by the Swinehart company:

152 Dubois St.,
Newburgh, N. Y., Aug. 29, 1905.

The Swinehart Clincher Tire & Rubber Co., Akron, O.

Gentlemen: You may remember my troubling you considerably last winter for particulars and names of users of your tires on pleasure automobiles.

My thorough investigation ended in ordering my friction drive "Lambert" car, weight 1,800 pounds, with your 3 1-2 inch tires.

Have now had the car since April, been 1,000 miles over all sorts of roads, city and country, mountain climbing, fresh-laid gravel, new-cracked rock, etc., and feel it my duty to write you this letter, as the tires are simply *grand*.

They never cause me any more thought than the spokes. No pump, no bursted tires, no tire expense whatever, no worry, are important items to one's motoring experiences.

My tires show some wear, but look good for this year and all of 1906. There are many little cuts, and often nails or tacks are found in them; still we go right along and enjoy the sport.

I wish you every success. Send anyone to me who wishes to ride on Swinehart tires. I will take them over old-fashioned cobblestone pavements as well as smooth macadam in this city, rough gutters, nasty crosswalks, etc. Yours very truly,

J. A. TUTHILL.

We should be glad to hear from other correspondents who have had experiences with the use of solid rubber tires on light cars and runabouts.

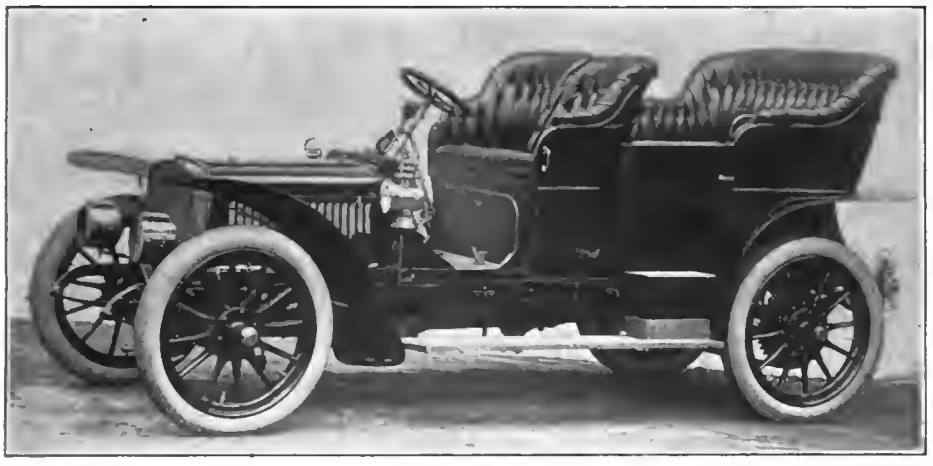
The Wichita police have been ordered to shoot at all automobiles going faster than twenty miles on hour within the city limits; the order is to shoot and puncture the tires and arrest the automohilist.—Mulvane, Kans., *News*.

Lozier Type C 35-H.P. Car.

Three type C Lozier touring cars for the season of 1906 are on exhibition in New York in a temporary salesroom which the Lozier Motor Company has opened at 22 East Forty-second street, near the Grand Central railroad station, pending completion of a new store which is being erected at the northwest corner of Broadway and Fifty-fifth street for the sale and storage of Lozier cars and launches.

The new car is the smallest of three models that the company will offer for next season. The next size will be a 40-horsepower car comprising virtually the same frame and running gear, but equipped with a slightly larger engine, and the largest will be a 60-horsepower model. This car will probably not be ready for delivery before the first of the year, when models of all will be exhibited at the New York show.

Model C follows accepted lines for up-to-date touring cars, and is notable particularly for its massive size and evident strength. It has a very long wheelbase (115 1-2 inches), enabling the frame to take a side-entrance body with doors about 22 inches wide, opening toward the front. The rear seat is of the double phaeton type and amply wide to accommodate three adults comfortably. Under the rear seat is a large compartment for luggage, with a door the full width opening from the rear.



LOZIER TYPE C 35-HORSEPOWER CAR FOR THE SEASON OE 1906.

The axles are of I section, drop forged from nickel steel, and with unusually massive steering knuckle yokes at the front. The steering knuckles and their connections are equally large and strong. The rear end of the frame is carried on three heavy semi-elliptic springs arranged platform style, with a transverse spring at the rear clipped to the middle of the rear member of the frame. The frame is of pressed steel, well braced by cross members with triangular stiffeners riveted in the corners. The same liberality in the use of materials to insure strength and safety is evidenced in the 36-inch artillery wheels fitted with five-inch tires, in the engine and its attachments, in the driving mechanism, and, in fact, throughout. The object of the manufacturers obviously has been to build a car for strictly touring purposes that could be relied upon to give the largest measure of comfort to the occupants and the least amount of trouble through breakages.

The engine cylinders are cast in pairs, and have a bore of 4 1-2 inches and stroke of 5 inches. The jackets and heads are cast integral with the cylinders. Inlet and exhaust valves are located on opposite sides of the heads, and the spark plugs are inserted vertically in the tops of the inlet valve cages through recessed ends of the valve cage yokes. The cylinders are enameled a drab color, which will be the regular finish. The gas mixture is supplied by a Schebler carbureter. Extra wide, noiseless, fiber gears rotate the cam shafts and drive the circulating pump. The fan and the mechanical oiler are driven by rawhide rope. A brass pipe at the front of the engine rises from the crankcase, affording relief for compression in the case and being used for introducing oil for splash lubrication.

Engine control is wholly by spark and throttle levers, which are mounted on a quadrant at the top of the steering wheel. This quadrant does not rotate with the wheel, however, but remains always in the same position, making it easy for the driver to tell at all times the position of his throttle and spark. The clutch and brake pedals are of the push-forward type, and have unusually large foot plates.

There is an automatic lock in the gear box which prevents engagement of the clutch when the gears are not properly meshed. The gear shafts are of nickel steel and are mounted on Hess-Bright ball bearings of large size; the road wheels, however, turn on plain bearings. All of the machinery, from the front cross member of the frame to the rear of the change-speed gearing, is protected from below by an aluminum pan built up of sheets of the metal riveted into place.

An unusual feature of construction is a rachet wheel and pawl mounted with the transmission brake on the left half of the countershaft, to be employed as a safeguard against running backward when climbing hills. The pawl is hinged on the cross member of the frame and can be dropped into engagement with the ratchet wheel by means of a short hand lever on the side of the car inside of the regular change-speed lever. There is an automatic release for this device to insure its disengagement when the reverse gear is thrown in.

Change-speed gearing is of the three-speed clash pattern transmitting to the differential on the countershaft, whence the drive is by heavy side chains to the sprockets on the road wheels. Emergency brakes expand within drums connected with the sprockets, and are entirely enclosed to protect them from dust. All large nuts wherever used are castellated.

The regular body is of the double phaeton pattern, with wide doors and of commodious size, with luxurious upholstering. The front seat is semi-divided. The finish is a rich wine color. On the large running boards are carried the battery box, on the right, and the tool box on the left; also on the left side of the frame, at the front of the foothoard, is attached a generator for the headlights. A twenty-gallon gasoline tank is located under the front seat, and as the fuel flows from it to the carhureter it passes through a strainer to remove impurities.

Landaulet and limousine bodies will also be built to fit this chassis, and deliveries are to begin in September.

De Dion Engine Dimensions.

The French firm of De Dion & Bouton has been very closely identified with the automobile movement in France from the very first, this concern having begun by manufacturing small air-cooled motors that were used on tricycles with remarkable success. As pioneers in their line, and successful ones at that, the following table giving some of the details of the De Dion & Bouton motors will doubtless be of interest to the readers of THE AUTOMOBILE. It should be borne in mind that in all cases the inlet and exhaust valves of any one engine are of the same size, and that the inlet valves are always automatically operated.

	H. P.	Bore mm.	Bore in.	Stroke mm.	Stroke in.	Con. Rod, Lgt. mm.	Con. Rod, Lgt. in.	Valve Dia. mm.	Valve Dia. in.	Weight kilos	Weight lbs.	Revolutions per minute
Single Cylinder.	1¼	62	2.44	70	2.75	180	7.08	25	.98	23	50	1,800
	1¾	66	2.59	70	2.75	180	7.08	30	1.18	24	53	1,800
	2¼	70	2.75	70	2.75	180	7.08	30	1.18	25	55	1,800
	2¾	74	2.91	76	2.99	185	7.28	32	1.25	26	57	1,800
	3½	80	3.14	80	3.14	215	8.56	34	1.33	45	99	1,800
	4½	84	3.3	90	3.54	220	8.77	38	1.49	50	110	1,800
	6	90	3.54	110	4.33	250	9.94	38	1.49	60	132	1,700
	8 (old)	100	3.93	110	4.33	250	9.94	42	1.65	65	143	1,600
	8 (new)	100	3.93	120	4.72	274	10.78	42	1.65	85	187	1,550
	10	110	4.33	130	5.11	285	11.22	46	1.81	85	187	1,500
Twin Cyl.	10	90	3.54	110	4.33	....	.....	42	1.65	78	172	1,500
	12	100	3.93	110	4.33	....	.....	42	1.65	78	172	1,500
	15	104	4.09	130	5.11	....	.....	46	1.81	..	..	.....

Practical Hints for the Autoist.

By A. D. RIVER.

THE automobilist should always keep in mind the fact that the constant vibration of the car will loosen, open or shake off anything that is capable of being jarred out of place; the mischief that can be accomplished in this way is sometimes surprising. Cocks and taps should always be carefully watched, for if they are not tight they will surely jar open. The relief cocks on the cylinders will, of course, give instant warning when they are open by the hissing of the escaping gas; but drain cocks in oil chambers will quietly allow the last drop of oil to run off, leaving the bearings or gears without lubrication. Drain cocks in the water system will also do their mischief silently, the automobilist knowing nothing of what is happening until his engine begins to overheat. Keep all cocks adjusted so that they turn stiffly, and try to have them placed where they will be as free as possible from the chance of an accidental knock.

* * *

Unless certain that there is no vehicle close behind you, never make a sudden reduction of speed or come to a sudden stop without giving a warning signal. The customary way of announcing the intention of slowing or stopping is to raise one hand in the air, so that those following may see it readily. Rear end collisions are undesirable, to say the least, and there are frequently occasions when they may easily occur if this simple method of signalling is neglected.

* * *

Never allow a tire valve to go without its cap, or at least a substitute for the cap. Dust is sure to work in and interfere with the seating of the valve, and the result will be a slow, steady and most annoying loss of air from the tire. If the cap is lost, tie a scrap of rag over the end of the valve stem to keep the dust out, and get a new cap at the first opportunity. A couple of extra caps occupy practically no space in the tool box, and should be carried along at all times.

* * *

"It's actually pitiful," said the Repair Man, "to see the way some men act when a fellow like myself tries to give them a bit of a boost in the shape of a friendly hint or two, or a warning that may keep them out of trouble.

"There was a fellow in here the other day who had bought a car a few days before, and had left it at our garage for the night. The owner told me he had been studyin' up automobiles for weeks, and that he was ready for anything that could happen to his car. I told him I had been studyin' automobiles for six years, and still had lots to learn; but he just looked at me as if he was sorry for me, and didn't say anything.

"When he was going out I noticed that he had set his luhricator to feed about half the oil the engine needed. I happened to know a good deal about that particular engine and its capacity for oil—to my sorrow. I told him so, but he couldn't see it. He had figured it all out for himself, and wouldn't be advised. 'What's the use of slobbering in a lot of oil that she doesn't need?' says he. 'She'll run her best with exactly the right amount, and I've worked it out to the dot.' 'Twasn't worth argufyin' about, so I let him go; but I knew just what would happen to him, and so it did. He ran his engine dry and cut two of the cylinders badly and ended up by seizing up hard and fast.

"No, he didn't call on us when he got stuck, but I heard all about it from the boss of the garage that took him in. He said that the last place his machine had been left in they had monkeyed with his oil feeds.. Wouldn't that jar you?"

And the best of it is that this is a true story. Moral: It takes a long time to learn all there is to know about an automobile.

* * *

"Talk about funny repairs!" said the Racing Man. "Here's a true story that's hard to beat. Several years ago I was running a 12-horsepower Panhard, one of the first cars in this country to have electric ignition. I made a trip to Long Branch without any trouble to speak of, but when I got there a pack of youngsters on bicycles got in front of the machine, and to dodge them I had to butt a telegraph pole. It was better than killing two or three of the kids, but it knocked out one front wheel, bent the axle, and did a few other little things. The smashed wheel was the worst, for it was hopelessly gone.

"We had to get home somehow, though, and we did. I found some pieces of flooring lumber, and got a carpenter to nail some of them together diagonally until they make up a thickness equal to that of the spokes of the broken wheel. In the middle he bored a hole big enough to let the barrel of the hub pass through. Then I marked off the positions of the bolt holes in the hub flanges and had them bored; put the wood in place as if it had been a wheel, and bolted it between the flanges. The next process was to get a circular shape to the thing, which was accomplished by mounting it in place on the axle and marking the correct diameter on the board with a pencil as it was revolved. The carpenter cut it as nearly round as he could with a tenon saw, and we called it a wheel and let it go at that.

"It may seem hard to believe, but that darned thing got us back to New York—nearly thirty miles. Its resiliency was not of a high order, and the appearance of the thing attracted no end of attention. The fact that the axle was badly bent didn't make it look any better. But we got there, with the thing creaking and crackling, and the edges fraying like a chewed toothpick. A few miles more and it would have collapsed. But it got us back without a bill for cartage."

* * *

There is no good reason why an automobile should be allowed to travel along city streets with a trail of noxious vapor and smoke belching from the exhaust pipe and making things unpleasant for other users of the highway, including horses. The presence of smoke is an indication that something is not as it should be; that there is too much gasoline or too much lubricating oil finding its way into the cylinders.

When it was a matter of some difficulty to keep an automobile running at all, as in the early days, there was some excuse for smoke and for a number of other nuisances, most of which have been eliminated; but in these days, when a little careful adjustment will remedy the trouble, smoke should not be permitted. An occasional puff or two, after the motor has been standing idle, for instance, cannot always be avoided; but that is a very different matter from the emission of a constant, suffocating stream.

In France and England the "smoke nuisance" is receiving energetic attention from the authorities, and also from automobilists of the better class, and a strong feeling is being aroused against taxing the forbearance of the public, already inclined to be favorably disposed toward the automobile. As long as automobiles comprise a comparatively small percentage of the vehicles plying the streets no great hardship can be created; but with the rapid increase of the number of automobiles the nuisance, if unchecked, is bound to increase proportionately.

There is another aspect of the case. An excess of gasoline or oil is, if not checked, sure to soot up the plugs, cylinders and piston heads, causing mis-firing, pre-ignition, pounding, and attendant evils. Therefore the man who keeps his carbureter and lubricator so adjusted as to feed as much as is required, but *no more*, is not only rendering a service to the public, but to himself as well.

* * *

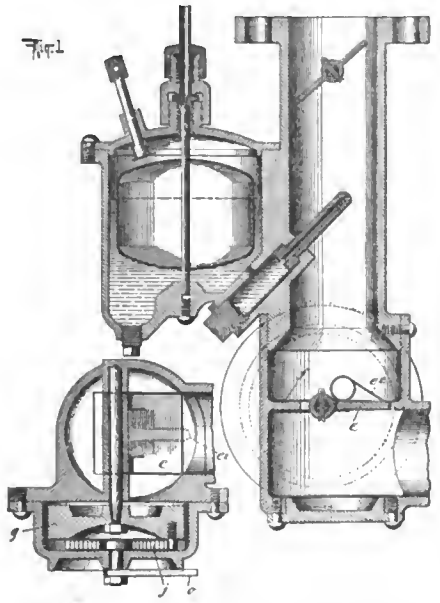
A few English automobilists are adopting the expedient of applying locks to their tonneau doors in the effort to prevent chauffeurs from taking their "girls" on unauthorized trips, the idea being that the necessity for climbing into the tonneau in an undignified manner will prevent, or at least check, the practice. It may be that the young women who are affected by English chauffeurs are too dignified to climb over the sides of a tonneau; but the tonneau of an American car that would remain empty under such circumstances would have to possess extremely high sides.

Patents

Carbureter.

No. 796,723.—P. C. Hewitt, of New York.

A carbureter intended to be automatic. The valve *e* partly closes the air passage below the spray nozzle, thus producing a certain amount of suction; and as the suction increases this valve lifts. The spring e^3 is designed merely to limit its downward movement, while permitting it to open freely downward in case of a back fire. Adjustment is obtained by the coiled spring seen in section at *j*, and by the index *o*.



HEWITT AUTOMATIC CARBURETER.

The disc weight *g* is stated to be intended by its inertia to prevent sudden movement of *e;* but its employment would seem to be an escape from one difficulty into another, as the inertia will make it overrun the force that moves it.

Planetary Gear.

No. 797,240.—R. Symmonds, Jr., of Kenosha, Wis.

The Rambler speed-changing gear. Two clutch cones *8 10* are employed, only one being engaged at a time. The former is engaged by the spring *11*, and gives the direct drive to the sprocket *7*. This is released by the lever *16*, and further movement of *16* engages clutch *10* through ball bearing *17*. Then, if band *32* be tightened, the drive is through pinion *25*, gear *22*, pinion *23* and gear *26*, giving the slow forward speed. For the reverse, *31* is tightened, locking gear *27* and causing pinion *24* to act as a fulcrum, thus imparting reverse movement to *26*. Band *19* is employed as a brake.

Ball Bearings.

Nos. 796,648 and 796,649.—C. A. Hirth, of Canstatt, Germany.

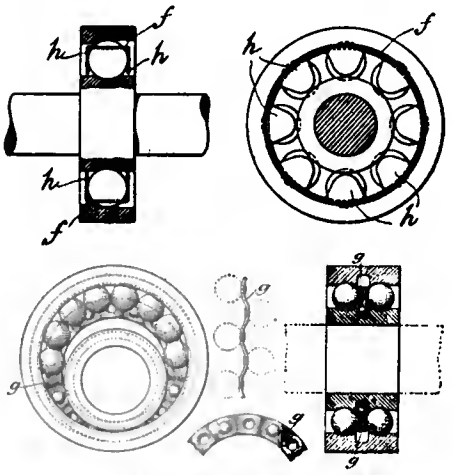
These are ball-bearings modified from the well-known two-point Mercedes type, the modifications consisting of special cages designed to separate the balls. In the first the cage is an annulus *f* with ears *h*, the ears being slightly grooved radially so as to act as spring clips to hold the balls in place. The especial point made for this form of bearing is that the pressure is applied by the clips at the points of the balls where their surface velocity is least instead of greatest. A modified form has two flat rings, one on each side of the balls, with suitable connecting springs to draw them against the balls. Other modifications are also shown.

The other bearing has a double row of balls, separated row from row and ball from ball by a corrugated ring *g* having the corrugations indented to hold the balls, as shown in the details. This bearing, as shown in the full view, is designed to permit the balls to be introduced without notching either race, the corrugated ring being dropped down as far as possible.

Speed-Changing Gears.

Nos. 796,989 and 796,990.—G. Enrico, of Turin, Italy.

Both of these are individual clutch systems, the clutches being hydraulically operated. In the second system, which is illustrated, a pump (not shown) delivers oil from the bottom of the gear case to the pipe *2*, with a relief valve *D* carrying any surplus back by pipe *5*. The oil enters the sliding tube *4* by a hole drilled for the purpose, and is delivered through holes in the plug piston *P* to one or another clutch. The inoperative clutches are relieved of pressure by the outlets *n*, through which oil can escape. The clutches shown are of inclosed conical type, requiring less force for



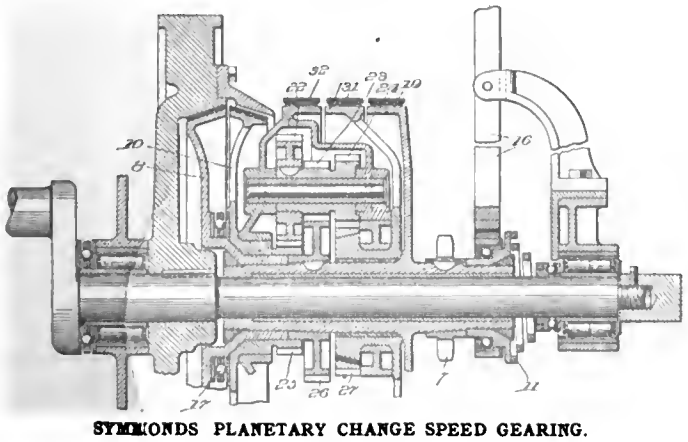
HIRTH TWO-POINT BALL BEARINGS.

engagement than disc clutches would. In No. 796,989 the clutches are released by springs, but apparently the inventor has found this insufficient, on account of the tendency of centrifugal force, to hold the oil in the clutch, for the cut shows small orifices i^1, i^2, i^3, i^4, which are too small to let the oil escape as fast as delivered by the pump, but still large enough to relieve the pressure at once when the piston *P* is shifted.

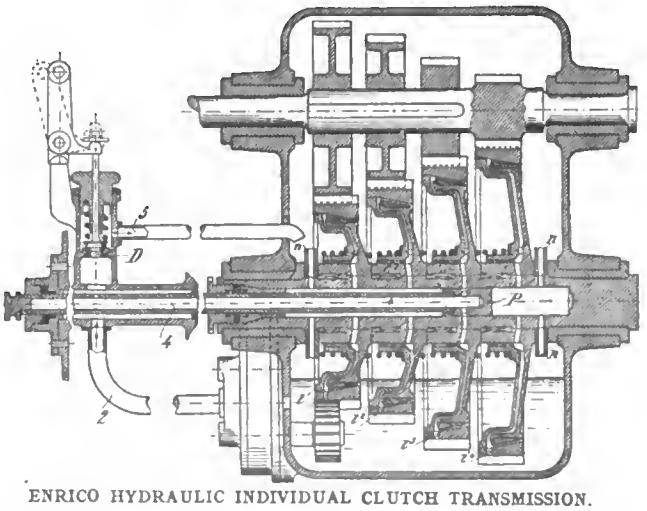
Grease Cups.

Nos. 797,257 and 797,258.—H. S. Blynt, of Steubenville, O.

Grease cups in which the pressure is applied by weights, and having devices to prevent the weights from jumping up and relieving the pressure owing to vibration. In one invention the device for this purpose consists of a pair of ratchets working over teeth cut on the side of the grease cup, and in the other invention a pair of cam fingers on the weight grip the inner sides of the cup, with a central plunger to release them for refilling.



SYMMONDS PLANETARY CHANGE SPEED GEARING.



ENRICO HYDRAULIC INDIVIDUAL CLUTCH TRANSMISSION.

THE AUTOMOBILE

VOL. XIII. No. 10

Published every Thursday by

THE CLASS JOURNAL CO.,

Flatiron Building, Madison Square,

NEW YORK CITY.

Cable Address - - - - Autoland, New York
Long Distance Telephone - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2.00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 5 o'clock p. m. Monday for the issue of Thursday following.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies Printed in 1904,	**639,300**
" " **This Issue,**	**13,500**
" " **Since Jan. 1,**	**501,000**

Run the Cup Race Right-Handed. At a meeting of members of the Vanderbilt Cup Commission, held last week, the previous decision to run the race "left handed" or counter clockwise was confirmed, and subsequently members of the commission were quoted in the daily press as expressing the opinion that it is as easy to run the race in one direction as in the other. It does not admit of dispute that it is as easy for those who will not take any of the risks of driving in the race to run it in one direction as in the other. Is the man at the wheel not entitled to be heard from and his opinions considered? We believe he is, and so record it.

A canvass of the drivers who will probably participate in the elimination trials has been made, and they are practically unanimous in declaring their preference for a right-hand or clockwise direction. On another page their own statements will be found.

Since the question of direction first came up, there has appeared in print a good deal of gossip and idle talk about its solution, but no serious effort appears to have been made by those in authority to ascertain the views of the men upon whom the burden of any decision will fall. Granting that there is something to be said in favor of holding the race "left handed," it has not yet been said by those who are most concerned—the drivers themselves.

It is reported that the foreign drivers will not object to the decision of the commission. Probably not, but it seems peculiar that not a single foreign driver is on record on the question; the opinions of two American sales representatives of foreign cars being taken as expressive of the preferences of the actual drivers.

In any event, this is an American race under American rules of the road, and the "right-hand" running of the race has been tried in the last Vanderbilt cup contest and found to be safe and successful. Now it is the intention of the commission to cast aside that experience as valueless, for no convincing reason, and in opposition to the preferences of the American drivers try an untried experiment in the conduct of the race this year.

We submit that the unavoidable risks which must be faced in holding a road race in which twenty high-powered cars will be sent around a thirty-mile course at tremendous speed are quite sufficient without introducing any unknown quantities. And further, the only opinions worth having are those of the men who will actually drive in the race, and which are not in accord with the decision of the commission.

✷

Regarding Route Books. Preparation of route books for automobile tours involves an amount of attention to detail and accuracy that is not always appreciated by those undertaking the work for commercial reasons—a fact that is only too well known by many who have experienced annoyances that might have been avoided if the directions had been written with a better knowledge of the requirements. Too many of the route books are based on old bicycle road books, and, although revised to bring them more up to date regarding the best roads, do not take cognizance of the differences between touring the country on a bicycle and in an automobile.

One great difference between the two methods is that the speed is doubled or tripled in the newer conveyance, so that it is frequently impossible to read the names on the few guide posts that are planted at forks and crossroads, especially when such boards contain a number of names and the letters are but two inches or less in height and are weather worn. The speed also frequently makes it difficult to choose the right road of a fork that is unposted, owing to the impossibility of determining quickly which is the better traveled road and of noting other indications that tell so much to the old road traveler. Telephone and telegraph lines that formerly were such an excellent guide are no longer to be much relied upon because their number has so multiplied, and because of the growing practice of carrying such line across private lands.

Combined with the speed of the car to increase the tourist's troubles is the noise of the machinery and the objection of the driver to bring the machine to a stop so that directions may be asked of other users of the highway. A shouted question is usually misunderstood, and the reply—when there is a verbal one—is rarely heard, because of the distance the car has moved and the noise it makes.

Yet another frequent cause of uncertainty and going astray is the lamentable fact that the residents of cities, villages and hamlets under no circumstances consider it necessary or advisable to display the name of the place on the main street. Not even Uncle Sam knows any reason for doing so, and the buildings wherein a branch of his business is carried on bear nothing more than the aggravating words, "Post Office." Only if the traveler by wagon road passes by chance the railroad station or alertly watches the signs on all the stores can he spy a sign that will give him the desired information. Occasionally some meat market, newspaper office, drug store or grocery will have the town name, though a store is almost as likely to be called the "New York," or "Boston," or "Chicago" market for no better reason than that the proprietor may have lived in one of those cities at one time, or wishes to dignify his little business with a big name. Even school boards appear to be ashamed of the names of their towns, for "Public School" or "High School" is all that one sees over the entrances to the educational institutions.

For all of these, and other, reasons it becomes necessary in gathering data for the compilation of a route description to take minute note of the road conditions and grades, and particularly of all forks, turns and prominent landmarks. No fork should be left unnoted to create doubt, and when turns are to be made some landmark should be mentioned, whether it be a red barn with a Castoria sign, a giant oak riven by lightning or a sign on the fence "X miles to Blank's wagon shop."

Exit from towns usually presents the most difficulty to the tourist. Too often the guide book directs him to "continue on Main street to Something street and turn left"—or right, north, east, south or west, as the case may be. Whoever knew a village to have the names of its streets prominently displayed at crossings, or its inhabitants to be able to direct one quickly and clearly to any particular street? Most villagers do not even know the street names—they can walk to John Jones' feed store or Mary Smith's house with their eyes shut, and have no need to know. So the directions should tell in parts of a mile or in squares or blocks how far to proceed on a street before turning, and then should designate the turn by some prominent building or other landmark readily recognizable and likely to be permanent. The color of a building should be avoided, since the owner might take a notion to repaint it.

Mileage is, of course, a good and necessary guide, and should be given frequently, as every tourist can readily fit a distance-registering instrument to his car, and by its aid determine his location at any time when he is on the right road.

Public Comfort and the Motor Truck. There is one aspect of the commercial vehicle for use in cities that is not, as a rule, given the weight it deserves, because it affects the owner less directly than most other considerations. The general use of automobiles for trucking and delivery work would result in an enormous decrease in the congestion that exists in many streets; would make the streets much quieter and more agreeable for those compelled to traverse them on foot; and would make the work of the "white wings" easy. The great length of the average truck and its team of horses makes it an extremely awkward affair to handle in a narrow street; and when a street is choked with tangled trucks, all trying to move in different directions, the conditions can only be fully appreciated by the men who have to guide the unfortunate horses. It is necessary to see an automobile truck under the same conditions to appreciate the difference made by the absence of the horses and the ability to turn quickly in a narrow space.

The din and racket in streets where much trucking is done is tremendous, and is nearly doubled by the continual shouts of the drivers, whose lungs are of the leathern variety, owing to long practice. In New York, for instance, which is frequently referred to as a city of awful noises, trucks and truckmen are responsible for a din that makes it torture to open many an office window, and in some districts makes sleep in the early hours of the morning an impossibility except to those inured to the roar. Every large brewery starts its beer trucks on their delivery routes at an unearthly hour in the morning, and the banging of steel tires, the clattering of hoofs, and the shouting of the drivers, are frequently causes for bitter complaint on the part of residents of the neighborhood, whose sleep is broken by the turmoil. Only one who has lived near a brewery and has laid awake and counted the trucks as they filed out at four-in-the-morning can fully appreciate this point. The silent passage of one of the big motor trucks, with no banging tires, no clattering hoofs and no roaring driver, is a weighty argument in favor of the motor truck, from the point of view of the neighboring public.

In the matter of cleanliness there is absolutely no comparison between the horse-drawn truck and the motor truck. It is true that the latter sometimes drops more oil than is good for the pavement, but this is unnecessary and can be stopped; doubtless it will be stopped as motor trucks become more numerous on the streets. But the sources of filth in the older trucks cannot be so dealt with; and, unlike oil, the other forms of dirt spread themselves through the atmosphere, creating disgusting and unsanitary conditions in windy weather that are only tolerated by force of familiarity.

About 200,000 men are employed in building automobiles in France.

CITY AND STATE LAWS IN CONFLICT.

Omaha Authorities Enforcing Local Licensing and Speed Ordinance Despite Invalidating Clause of New State Auto Law—Lawyers Assert State Statute Is Unconstitutional.

Special Correspondence.

OMAHA, Sept. 2.—Automobile enthusiasts in Omaha are somewhat agitated over the new Hand state law, which legislates for "motor vehicles" and became operative July 1, 1905. Since May, 1904, the autoists of the city have got along very well under a city ordinance, but the Hand law conflicts with the ordinance in more than one particular, especially in the matter of speed regulations. The Omaha maximum has been eight miles an hour in the business district and twelve miles an hour outside, but the new statute extends this to "ten miles in the closer built up portions, fifteen miles elsewhere within corporate limits, and twenty miles outside."

The additional speed legalized does not meet with the approval of officers at the City Hall. Despite the fact that the Hand law attempts to render all city, town and village legislation on the point nugatory, City Attorney Breen has declared the act unconstitutional in this respect and announced that he would carry it into court, if necessary, to sustain his position.

Up to this time the machine owners have secured permits from both city and state at city and state numbers of their cars and obeying the city ordinance while inside the city limits. A disposition has been manifested, however, to bring the matter to a test, not so much over the question of the municipality's right to govern its own street traffic, which the city attorney contends cannot be taken away, as about the following remarkable section in the Hand law:

"Any person operating a motor vehicle shall, at request or on signal by putting up the hand, from a person riding or driving a restive horse or other draught or domestic animal, bring such motor vehicle immediately to a stop, and, if traveling in the opposite direction, remain stationary as long as may be reasonable to allow such horse or animal to pass, and, if traveling in the same direction, use reasonable caution in passing such horse or animals, and the operator or occupant of any motor vehicle shall render necessary assistance to the party having in charge such horse or other animal, in so passing."

Representative W. E. Hand hails from Cass county, and his postoffice address is Greenwood. There isn't much around Greenwood but farms. The section quoted has not been called into activity so far, and it may have been merely an "inducement" in the attempt to fix speed limits and put all motor cars under solely state supervision.

The section of the state law which lawyers say invalidates it, reads:

"Cities and towns shall have no power to pass, enforce or maintain any ordinance, rule or regulation requiring of any owner or operator of a motor vehicle any license or permit to use the public highway or exclude or prohibit any motor vehicle whose owner has complied with the law from the free use of highways, and all such ordinances, rules or regulations now in force are hereby declared to be of no validity or effect."

Automobilists, warned by a few police court fines, are still taking out permits from the city.

On other points the two laws are stereotyped, the state law excluding non-resident owners from its licensing provisions provided they have complied with the registration laws of their own states and supply satisfactory proof. The city ordinance, however, licenses drivers while the state law requires registration of the machine. The penalty for violating the Hand law is not more than a $25 fine for the first offence, while the ordinance gives a range as high as $100. Second offences against the statute, however, may meet with a fine of $50 or thirty days in jail.

It seems improbable that the matter will be kept out of the courts very long, as new cars are coming into Omaha and Nebraska at the rate of six or more a day.

SPEED LIMITS DISAPPROVED.

Massachusetts Highway Commission Rescinds Local Ordinances.

Special Correspondence.

BOSTON, Sept. 4.—Two notable decisions on local speed regulations enacted by boards of selectmen under the state law passed by the legislature last winter, were announced last week from the office of the Massachusetts Highway Commission. The findings of the Commission disapprove the regulations of the towns of Nantucket and Edgartown.

The town of Nantucket is upon an island thirty miles out at sea off the southern coast of Massachusetts, and its streets are crooked and narrow. Outside the town the only good road is a stretch of seven miles of state road running across the island. Nantucket is now a favorite summer resort and the livery business is profitable to a large number of inhabitants. Last year the selectmen enacted speed limits of four miles in the village and eight miles outside. This regulation was annulled by the new automobile law, but was re-enacted this spring.

In Edgartown, which is upon the neighboring island of Martha's Vineyard, the conditions are in general similar to those in Nantucket. The local speed regulations there were four and ten miles an hour. In both places there is strong feeling against automobiles, and some autoists who have visited Nantucket with their machines have found local feeling running so high against them that their visits have been brief.

The Massachusetts Automobile Association, which is conducting the campaign against unfavorable local regulations, entered a protest against the Nantucket and Edgartown regulations, and the Highway Commission, after considering the evidence all summer, has announced its disapproval of the regulations in both towns. This means that until the selectmen enact other speed regulations the general speed law of the state allowing ten miles in towns and fifteen miles outside will be in effect.

With these two cases the automobilists have to their credit five victories in six cases that have been decided by the Highway Commission. In Framingham alone have the automobilists been unable to win their case. The attitude of the commission, as nearly as can be determined from its decisions, is that it will uphold local regulations when it can be shown that public safety require them. It has not, however, shown a desire to support local authorities in putting a ban upon automobiles on all the highways of a given place.

BAR HARBOR'S QUIET DISTURBED.

Special Correspondence.

PORTLAND, ME., Sept. 2.—Bar Harbor and the village of Eden, whose streets hitherto have been innocent of automobile

wheel tracks, were traversed by one of the modern vehicles on Sunday last, and a flutter of excitement was caused among the inhabitants. The local regulations forbid the use of automobiles on any of the roads by which the place may be entered, and the only way a car can get into the town legally is by boat. On Sunday the steamer *T. J. Morse* landed a big touring car and a chauffeur, destined to Sullivan; and the chauffeur wanted to take the car to its owner under its own power, as it could not be taken on the ferry that runs to that place.

Sorely puzzled, the chauffeur laid the matter before the local authorities, with the result that the First Selectman decided to suspend the regulations long enough to let the car get out of town. The chauffeur promised to obey instructions, and the chief of police then climbed into the seat beside him. The First Selectman got into his buggy and drove ahead, and thus they traversed the ten miles to the town limits, the First Selectman warning all and sundry that there was an automobile coming. The summer residence of Dave Hennen Morris, president of the Automobile Club of America, was on the route followed by the procession; but Mr. Morris was not in evidence.

POW-WOW OVER LEICESTER ARRESTS.

Special Correspondence.

WORCESTER, Sept. 4.—Officers of the Worcester Automobile Club and the board of selectmen of the town of Leicester, Mass., had a conference last Friday night relative to the large number of automobilists whom Constable James M. Quinn, of that town, has been summoning into court every week for exceeding the speed limits of the town.

Neither parties would tell what transpired during the meeting, although word was quietly passed around that in the future motorists exercising reasonable care while driving through Leicester need have no fear of being served with a summons, which in this section is the same as handing over $15, for no one gets away from Judge Samuel Utley, of the central district court, for less.

This concession was made in consideration of the Worcester Automobile Club removing its flagman from the Leicester-Spencer line, where for some time he has been warning approaching motorists of the speed laws of the town.

However, it now appears that too much was taken for granted, for on Saturday, the day following the conference, George Derrick, the first automobilist to pass through Leicester, was found to be exceeding the speed limits, and will have to appear in court here this week.

Constable Quinn says that he does not care what automobilists say about matters being "fixed" as regards the timing of cars in Leicester, as he fully intends to keep on the lookout as long as automobiles pass through the town.

It can not be learned whether the club will reinstate its flagman, who is now looking for a job.

IMPORTATION OF AUTOMOBILES.

During the month of August 111 automobiles were imported from Europe through the port of New York, according to a statement issued last Saturday by Appraiser George W. Whitehead. In the same month last year the number was only forty-seven.

In the seven months ended with August, 1905, automobiles to the number of 654 and of a total valuation of $2,000,000, were imported, as compared with 363 for the same period a year ago.

GOOD WEATHER FAVORS TOURISTS.

Megargel Making Good Time Over Dirt Roads of Iowa in the "Mountaineer" on Transcontinental Tour—Sleeping Arrangements in Car Like a Pullman Berth.

Special Correspondence.

GRINNELL, Iowa, Sept. 2.—After driving 1,700 miles in the last two weeks, including a two days' stop at Chicago, where we had suspensions affixed to the springs of the *Mountaineer*, we pulled into Grinnell none the worse for wear. Touring conditions are so perfect that not even our tires showed any amount of wear and instead of putting on a new set of Diamonds at Des Moines, as we had intended, I think this set will carry us all the way across the continent.

Ever since leaving New York we have encountered touring parties at every few miles. I thought this state of affairs would change after getting west of Chicago, but while of course the number has diminished somewhat, we are still encountering other tourists, bound north, south, east and west.

Thursday night we slept in our car near West Liberty, not that we were compelled to do so, but we wished to test its sleeping qualities. With the front seat tilted forward and the cushions arranged for sleeping, the inside of the car presented much the appearance of a berth in a Pullman and proved fully as comfortable to sleep in as anything the New York Central furnishes. A canvas covering is carried that buttons on the back of the body and on the outside of the dash, covering the car completely, and protecting the sleepers from both cold and damp.

The roads through Illinois and Iowa are in excellent condition. They are dirt roads and when it rains they are almost impassable for an automobile, but when it does not rain for a week or two they are rolled down by the heavy, wide-tired wagons hauling corn, and are made almost as smooth as asphalt pavement. It is easy to run at a thirty mile clip over lots of stretches in Illinois and Iowa, while eighteen miles an hour can be averaged most of the time. There is an occasional sandy stretch, but with three and a half inch tires we have taken them all thus far on the high.

We have done little night running, although our searchlight gives a clear, broad light that can readily be followed over unknown roads at a twelve-mile clip without danger to ourselves or passing rigs. This is the first tour on which I have been provided with lamb covers, and I will never be without them again. Every lamp on the machine is as bright and in as good condition as when we left New York.

Gasoline can now be had in almost every grocery, drug and hardware store in the country towns, most of which have signs either extending across the street or on the front of the building, reading "Gasoline for Automobiles 76 Test." Just what the "test" was when purchased I am not prepared to say, but when you buy 76 you usually get 68 or 72, and when you buy the latter you get about 64; but outside of actual racing I can get just about as good results from 64 (actual) as from 72 or 76.

Batteries are another thing that are not always what they are supposed to be. We have had occasionally to purchase a cell or two along the line, and our ammeter is always used no matter how reliable the dealer is who does the selling. Frequently he is greatly surprised at what the little instrument registers, for he purchases the batteries believing he is getting at least fifteen amperes and our instrument shows ten or twelve, not much stronger than the cells we have just discarded.

It is surprising to note the circulation the leading automobile publications have. As soon as we enter some of the smallest towns we find almost immediately that we have been expected for two or three days. Inquiry reveals that some townsman subscribes for an automobile paper, which is passed from hand to hand until all are posted and ready to welcome us.

At West Liberty we met an old friend, V. R. Lane, photographer, automobilist and capitalist. He has built for himself two automobiles, the first a steamer, which has since been discarded, and the last a two-cycle, air-cooled gasoline runabout. At Cedar Rapids a small army of Reo owners assembled to see the *Mountaineer*, and four cars escorted us miles out into the country on the way to Grinnell. The Weaver Automobile Company is rapidly bringing automobiling into prominence in and around Cedar Rapids.

PERCY F. MEGARGEL.

SOME REGISTRATION DATA.

Types and Makes of 2,000 Cars Listed in Albany in Four Months.

Some interesting data have been compiled from the official records of automobile registrations at the office of the Secretary of State at Albany by a New York publisher of the registration lists. Taking the records of the first four months of 1905, from January 1 to May 1, the statistics show that a total of 2,041 motor vehicles were registered. Most of these are probably new machines, although some undoubtedly were second hand.

Of the total of 2,041 new registrations in the four months, 1,598 were American gasoline cars, 199 were foreign gasoline cars, 124 were electrics and 120 were steam machines. Of the American cars, 1,243, or nearly 78 per cent., were cars licensed under the Selden patent, and 355, or a little more than 22 per cent., were unlicensed. Of the foreign cars, 93 were known to be licensed and 106 were uncertain. This makes the total of all gasoline cars registered in the state 1,797, of which 1,336, or 74.35 per cent., were licensed.

The greatest number of any one make registered was 158 Cadillacs. Next among the domestic gasoline cars comes the Pope (three makes), of which 149 were registered. Other makes were recorded as follows: Olds, 135; Franklin, 114; Locomobile, 112; Ford, 76; Winton, 73; Packard, 69; Rambler, 69; Pierce, 67; Autocar, 66.

Among the foreign cars the best showing was made by the Panhards, of which 39 were registered; next come the Mercedes with 38, Renault 25, C. G. V. 16, Fiat 14, Darracq 11, Rochet-Schneider, Richard-Brasier and Decauville 7 each, De Dietrich and Bollee 6 each.

Of the 124 electric cars registered, just 67, or a little more than half, were Columbias. Twenty-three were Vehicle Equipment Co. machines, and 18 were Bakers.

Of the 120 steam cars registered 95 were Whites, 10 were Mobiles and 8 were Stanley machines.

The records at Albany show just 79 different manufacturers in all, and many of these are represented by only one car.

Whenever an automobile is mentioned on a country road, the idea at once comes that the machine always takes the larger part of the highway. An instance recently demonstrates the fact that the farmer wants to crowd the automobile off the earth if possible, and thereby make an enemy of the owner.—*Exchange.*

WASHINGTON RACE MEET.

H. A. Rhine Wins Three Out of Five Events on Bennings Track.

Special Correspondence.

WASHINGTON, Sept. 4.—More than 6,000 people journeyed out to the Bennings race track this afternoon in automobiles and trolley cars to see the automobile race meet given under the auspices of the Central Labor Union. The racing was limited to stock cars, and as many of the drivers were well known to many of the spectators the liveliest interest was manifested in the various events. Fast time was out of the question, for the Bennings mile track is a sandy course, and an early morning rain made it sticky and cuppy.

Honors of the day were carried off by H. A. Rhine, who won three of the five events in a 14-horsepower Yale. C. L. Miller, in a 10-horsepower Cadillac, and J. L. Deneal, in a 10-horsepower Franklin, tried to beat him in the three events in which he started, but in each instance their efforts were in vain. Rhine caught the fancy of the big crowd when he drove around the track with the three cups which were awarded to him.

THE SUMMARIES:

Three-mile motorcycle race, machines of 1 3-4 horsepower, flying start.—Pat Throop, Indian, 1st; W. T. Campbell, Indian, 2d; E. Taft, Indian, 3d. Time, 5:39.

Three miles, for gasoline runabouts, stock cars listing at $900 and under, regular road equipment, moving start.—H. A. Rhine, 14-horsepower Yale, 1st; C. L. Miller, 10-horsepower Cadillac, 2d. Time, 6:03.

Five miles, for gasoline cars, listing at $1,250 and less, stock cars, road equipment moving start.—H. A. Rhine, 14-horsepower Yale, 1st; C. L. Miller, 10-horsepower Cadillac, 2d. Time, 10:51 1-5.

Five miles, gasoline cars listing at $1,600 or less, stock cars, road equipment, moving start.—J. W. Boyd, 14-horsepower Franklin, 1st; F. S. Bliven, 14-horsepower Franklin, 2d. Time, 12:50.

Three miles, for steam cars listing at $700 or less, stock cars, road equipment, moving start.—R. French, 10-horsepower Stanley, 1st; F. S. Cahill, 10-horsepower Stanley, 2d. Time, 6:52.

Five miles, free for all, stock cars of any weight and motive power.—H. A. Rhine, 14-horsepower Yale, 1st; J. N. Deneal, 10-horsepower Franklin, 2d. Time, 9:47 1-2.

PROVIDENCE MEET ABANDONED.

Special Correspondence.

PROVIDENCE, Sept. 4.—The board of governors of the Rhode Island Club, at a special meeting, decided that the automobile meet which was scheduled to be held in this city September 9, will be indefinitely postponed. The date was cancelled on account of the numerous accidents which have occurred recently on circular tracks. The club was a pioneer in automobile racing, and the members of the board decided that it was the duty of the club at this time to do all it could to eliminate the dangerous sport. Racing was begun on the track at Narragansett Park a number of years ago, and it at once sprang into popular favor. From the first track meet to the present time there have been many changes, and the strides in the manufacture of high-powered machines have brought the sport to a point where even the most ardent adherents realize the grave danger, not only to the participants, but also to the spectators. An effort is being made by the Runs and Tours committee to hold an extra tour or an invitation event later in the month.

NOVEL COLORADO CARNIVAL.

Special Correspondence.

GREELEY, COLO., Aug. 30.—Arrangements are nearing completion for a novel carnival to be held in this city in the early part of September, in which the automobile will participate. The Wells County Automobile Club claims to have more automobiles than any county of its size in the United States, and in order to exhibit these has arranged for a "dressed parade" and harvest day carnival. Contrary to the usual custom of using flowers, the automobiles will be decorated with the agricultural productions of this section.

IOWA ROAD CONVENTION.

A good roads convention was held at Lake Manawa, a few miles from Council Bluffs, Iowa., August 23, and was well attended and automobilists were especially interested. One of the features was a demonstration of roadmaking with ten horses, a grading machine and a heavy road roller. Mayor Macrae, of Council Bluffs, an enthusiastic autoist, opened the convention with a witty speech. Thomas H. McDonald, secretary of the Iowa Good Roads Association, and a member of the faculty of the State Agricultural College at Ames, told what was being done for good roads in Iowa. D. Ward King, an advocate of the split log road drag, made the principal address.

This year's Mardi Gras festival at Coney Island, the popular New York seaside resort, will include an automobile parade as one of the special features. The committee in charge of the arrangements, composed of prominent Coney Island business men, has set apart Wednesday evening, September 21, as "automobilists' night." From the Gorham company the committee has ordered a series of handsome silver trophies. The first prize will be awarded to the best and most complete car in the parade. Prizes will also be given for the best decorated autos and for the car that is deemed to be the best equipped. The festivities will commence on Tuesday, September 19.

JERSEY BEACH RACES.

Great Throng of Spectators at Atlantic City Spoils Wet Weather Sport.

Special Correspondence.

ATLANTIC CITY, Sept. 4.—Despite rainy, windy and generally dismal weather, thousands of spectators filled the grandstand and lined the course to watch the auto races on the sea beach to-day below Ventnor, held under the auspices of the Atlantic City Automobile Club. They were the first races ever held here. The card of events scheduled for last Saturday were postponed until to-day owing to the high tides.

To-day the city was filled with the largest crowd of resorters from New York, Philadelphia and the New Jersey cities that has gathered here this summer. Several thousands sat under umbrellas on the grandstand and covered their knees with newspapers, and other thousands crowded down onto the beach in raincoats and under umbrellas until the police were powerless to keep the course clear for the cars. They refused to pay any attention to the officers, and the race meet officials decided in view of the danger of accidents to stop the races until the people got off the beach. Walter Christie, Henry Ford and Campbell refused to make any speed trials for fear of accidents, although later Campbell drove a mile in 50 seconds, and afterward declared it had shaken his nerves to make the flight through the mass of people.

LINE-UP OF TOURING CARS ENTERED IN RACES RUN ON BEACH AT ATLANTIC CITY, N. J., LABOR DAY, SEPT. 4.

The runabout and touring car races were run, however, the one milt for lightweight cars, moving start, was won by E. Walter Harper in a 10-horsepower Stanley, in 1:13 2-5, with Mrs. J. N. Cuneo second in a 10-horsepower White, and C. W. Kelsey third in an 8-horsepower Maxwell.

The one mile race for touring cars, not stripped, occupied by owner and three passengers, and with standing start, went to Charles Swain in a 40-horsepower Winton in 1:27, with John T. Wilkins, Jr., second, in a car of the same make and power.

In the mile race for cars of 20 horsepower or more, moving start, J. Miers was first in James Reilly's 36-horsepower Welch in 1:25, and G. H. Jones ran second in a 20-horsepower Jones-Corbin, and John Donnelly was third in a 24-horsepower National.

The mile race for heavyweight cars went to Charles Bacharach in a 28-horsepower Packard in 1:15 1-2. Buick cars ran second and third, and a 20-horsepower Jones-Corbin, driven by G. H. Jones, fourth.

The time guessing contest for touring cars carrying four persons was won by J. Everett Mohrer in a 40-horsepower Thomas in 3:00 2-5. J. N. Wilkins, Jr., was second in a 40-horsepower Winton, and Frederick Johnson third in a 24-horsepower Winton. The prize was awarded to the driver who drove a mile in nearest to three minutes, or at the rate of twenty miles on hour.

The rest of the unfinished program was to be carried out on succeeding days.

MILWAUKEE ORPHANS' DAY.

Club Members Take 300 Children to Whitefish Bay for a Day's Fun.

Special Correspondence.

MILWAUKEE, Sept. 4.—More than 300 little orphans, who are cared for in the various orphan asylums in this city, were given a day's outing last Thursday that they will never forget. The members of the Milwaukee Automobile Club took the children to Whitefish Bay in the morning in their autos, and called for them again in the evening At 9 a.m. the caravan of cars, numbering seventy-five, began its trip, and the appearance of several hundred little children, shouting and laughing, was the most picturesque feature of one of the prettiest parades ever held in Milwaukee.

At Whitefish Bay the day was spent by the children in bathing in the lake, building houses in the sand, and playing games, all under the watchful eyes of the nurses and attendants, who had made the trip in an electric car, and were waiting for the little folk upon their arrival. The luncheon, which was donated by men and women of the city, was a bounteous one, and no feature which would add to the pleasure of the occasion was neglected.

At 5 o'clock the automobilists again drove to the Bay, and the trip home in the cool of the afternoon was even more enjoyable than the morning ride.

"While this was the first trip of its kind that the Milwaukee Automobile Club has participated in," said R. J. Healy, captain of the club, "I trust that it will not be the last. Nothing in the way of conveniences for the pleasure of the orphans was overlooked, and their childish manifestation of appreciation served as ample compensation for any trouble which might have been caused the autoists. The only feature which in any way marred the parade was the desire on the part of several drivers to convert the trip into a road race. Fortunately, however, no accidents occurred.

ELKHART CLUB FORMED

The Elkhart (Ind.) Automobile Club has been organized by the adoption of a constitution and by-laws, the former of which is a duplicate of the Chicago Automobile Club's. The following officers have been elected: President, C. G. Conn; vice-president, G. A. Briggs; secretary, R. C. Barney; treasurer, J. A. Cook; with a board of five directors. President Conn has announced his intention of giving a banquet, at an early date, to all the automobile owners in Elkhart, whose names will be enrolled on the automobile membership's list, and all will be expected to take part as members. At that time Mr. Conn will be prepared to announce the various committees.

CHICAGO CLUB IMPROVEMENT

Special Correspondence.

CHICAGO, Sept. 2.—The Chicago Automobile Club continues to increase in membership and is now one of the largest clubs of its kind in the country. Fourteen new members were admitted this week, bringing the list up to 540.

As a result of the rapid growth the members are planning the improvement of the present clubhouse on Michigan avenue. The officers of the club have been trying to locate Col. E. H. R. Green, who owns the property, in order that a long lease may be secured. Colonel Green, who is the son of Hetty Green, is now traveling through the country. If he is willing to extend the lease, many thousands of dollars will be expended in improving the clubhouse and also in erecting an addition on the south side. This will enable the officers to add a dance hall, bowling alleys, billiard room and new parlors and reception room, all of which are greatly needed, but which have not been possible owing to the limited size of the clubhouse.

NEWS OF THE CLUBS.

WORCESTER.—The Worcester A. C. has decided to have a gymkhana at the preserves of the Grafton Country Club, in North Grafton, on September 23. The events are to be varied and interesting, and will tend to demonstrate the ease with which automobiles may be handled and controlled. Among the events will be a flower parade. A polo game will be played with autos instead of horses. Harry W. Smith, a well-known horseman, is giving the affair all of his time.

OMAHA.—Since the organization of the Omaha Automobile Club it has been suggested that an auto show be held during the coming winter in the newly built Auditorium. As Nebraska, western Iowa, Wyoming, Montana and the Dakotas provide an extensive market for local dealers, it is thought the attendance would be large and the show a success. The idea is being given favorable consideration.

MINNEAPOLIS.—Asa Paine, of Minneapolis, was elected president of the Florida East Coast Automobile Association on September 2, according to advices received in Minneapolis. Mr. Paine will consequently take an active part in the annual Ormond races next winter. He divides his time between Minneapolis and Florida, having spent the winters for a number of years in Florida. During the summer season he is one of the active members of the Minneapolis Automobile Club. Mr. Paine is at present in Florida.

DETROIT.—The A. C. of Detroit has formally opened its new clubhouse at Pine Lake. The house occupies a position of commanding beauty on a bluff overlooking Pine Lake, and the surroundings are particularly agreeable. The clubhouse is 40 by 80 feet in size, with a verandah all around. The lower floor contains a large assembly room, dining hall, library, buffet and kitchen. Above are seven commodious sleeping apartments and two bathrooms. In the rear of the clubhouse is a garage capable of holding a dozen cars, and with sleeping quarters for servants. The club also has its own pumping station and water works, and occupies 11 1-2 acres of ground.

CINCINNATI.—The A. C. of Cincinnati recently issued a 32-page booklet containing the register of its officers, governors, and committees for 1905 and the names and addresses of all members to date. In addition it contains the automobile laws of the states of Ohio, Indiana, and Kentucky; the automobile ordinance of the city of Cincinnati which embraces rules of the road, with diagrams showing the proper way of turning corners; and the club by-laws and club rules and regulations for observance by drivers of automobiles. It is a most useful little book for members of the club and is an example of the sort of year book that other clubs might issue to advantage.

FORT WAYNE.—At a recent meeting of the Fort Wayne (Ind.) A. C., the subject of a race meet to be held late in September, in which some of the world's fastest drivers will compete, was discussed. President Guldlin has put up a handsome silver trophy cup, to be competed for by local automobile owners. The winner will be entitled to hold the cup for a year, or until it is taken from him by a faster driver. The races will be held at the Driving Park.

MONTGOMERY, Ala.—Local enthusiasts will shortly organize the Montgomery Automobile Club. In fact, steps have already been taken toward that end, and a temporary organization with fifteen members was effected at a recent meeting. At this meeting Rev. Neal L. Anderson was elected temporary chairman; Dr. F. C. Stevenson, temporary vice-chairman, and Percy F. Black, temporary secretary. A committee was appointed to formulate a constitution and by-laws, which will be submitted to the organization shortly.

SPRINGFIELD, O.—The Springfield A. C., whose members are auto owners and those engaged in the manufacture and repair of the machines, was incorporated in Columbus recently. The incorporators are: A. F. Sparks, Paul A. Staley, Harry C. Downey, C. W. Russell and C. C. Bramwell. Mr. Sparks was elected president of the club, and Dr. Russell the chairman of the board of governors. The organization is incorporated as a pleasure club, and no amount of capital stock is filed with the secretary of state. The club already has a large membership, and there is no doubt that it will steadily increase.

NEW YORK.—A campaign is now being waged by the American Automobile Association for individual memberships on a basis of $2 a year dues and no initiation fee, all automobilists and others interested, whether club members or not, being eligible. Since this policy was inaugurated, the national organization has added many new members. The secretary of the association, A. G. Batchelder, at 31 West Forty-second street, New York, is at present besieged with requests for touring information, which requests are being promptly responded to. An efficient touring department, which will yield members special advantages in the way of maps, has been instituted, and plans are going forward for the bestowal of many other benefits upon the individual members.

A Hungarian chemist named Brunn is said to have discovered a liquid chemical compound which is capable of producing extraordinary effects when applied to certain materials, according to the Daily Consular Reports. A piece of slag, after being soaked in this liquid, refused to break when struck a hard blow with a hammer. Bricks and wood similarly treated absorbed no water after a prolonged immersion, and steel, subjected to ammonia tests whose effects were equal to five years' exposure to the atmosphere, showed no deterioration as a result of the hard treatment. The inventor expects that the application of his discovery will, at the lowest estimate, double the life of metals used in bridges, buildings, ships and so on, while the liquid can also be used to make roads waterproof, dustproof and germ-proof.

The auto is here to stay. A farmer down in Fountain county, being short of a horse in his haying, utilized Mr. Auto to pull the hay rake.—*Stockton (Cal.) Record.*

INDUSTRIAL

BEARINGS AND CLUTCHES DISCUSSED.

Special Correspondence.

More than a score of engineers from the factories of members of the Association of Licensed Automobile Manufacturers met in New York City last Friday, at the regular monthly meeting, and discussed automobile bearings and clutches. The proceedings combined features of short illustrated lectures with those of an experience meeting. Leading parts makers had specimens of their product on hand, with representatives present to explain them. Working models and actual sets of bearings were exploited by Henry Hess, of the Hess-Bright Bearing Company, of Philadelphia; by representatives of the Standard Roller Bearing Company, the Timken and Hyatt Roller Bearing companies, the American Ball Bearing Company, of Cleveland, and others.

The exponents of the different bearings were closely catechised by those of the engineers who had most knowledge of the subject, and all present reaped the benefit of the replies and the discussions.

Before the next meeting it is expected that this organization of automobile experts will have an experimental and testing laboratory in operation, where even more practical work can be done. An appropriation for this purpose was made recently by the licensed manufacturers, or parent body, and a committee of three, H. E. Coffin, C. B. King and John Wilkinson, was appointed at the meeting to proceed at once with the establishment and equipment of such a plant. It is probable it will be located at Hartford.

In the routine proceedings of the meeting, A. L. Riker, of Bridgeport, was elected permanent chairman.

CADILLAC FACTORY ADDITION.

Special Correspondence.

DETROIT, Sept. 2.—The Cadillac Automobile Company is about to make an additional investment of $120,000 to keep up with its rapidly growing business. It has purchased a piece of ground, 350 by 83 feet, adjoining the east line of its site, and will erect a factory addition three stories high and covering practically all the new ground. This addition will cost $100,000. It will be fireproof and up to date in equipment. The site for the new addition cost $20,000. With the addition the entire site measures 350 by 483 feet, and the company also has a building on the east side of Cass avenue. Treasurer W. C. Leland says that the 1905 output will be at least 4,000 machines, with the prospect of a larger number next year.

NEW SAN JOSE GARAGE.

Work has been started on the erection of a new garage at the northeast corner of First and St. James streets, San Jose, California. The building is to be 70 feet wide by 132 feet deep, and 20 feet high. The front will be decorated in cement block and cement cornice work, topped with terra cotta tile. There will be two large entrances to the building on First street, each nine feet wide. The building, which is to be lighted by windows along the St. James street side, will be able to accommodate fifty machines, in addition to a runway of roughened cement. The rear portion of the garage will be occupied by the machine shop, 54 by 70 feet in size. Between the machine shop and the garage the offices will be located, affording an unobstructed view of both divisions. It is the intention of the owners to install up-to-date waiting rooms and a French grill for the benefit of automobilists who will make but a short stop in the city. The new garage is being constructed by M. Wenger and C. H. Johnson for the Letcher Automobile Company, who are now occupying a site on South Second street. The architects are Wolfe & McKenzie, of San Jose. It is estimated that the cost of the building will be $10,000.

MERCEDES PALACE FOR NEW YORK.

A handsome "Mercedes Palace" is to be opened in New York by a syndicate in which Charles W. Morse, E. C. DeWitt and Mr. Wineburg, of New York, are interested, according to a report from Paris dated last Saturday. On the authority of M. C. L. Charley, the Mercedes agent in Paris, it is said that the three men named have entered into a contract with M. Charley, which runs for the same period as his contract with the German firm, to control the sales of Mercedes cars in the United States. It is intended to erect a handsome sales and repair establishment in the central part of New York and to establish agencies in other leading cities.

PROGRESS ON FRANKLIN MODELS.

SYRACUSE, Sept. 4.—The Franklin Manufacturing Company is thoroughly abreast of the movement to market 1906 models of automobiles earlier than heretofore. Its designers have been very busy during the summer months, and, it is stated this week, the 1906 models will be ready for the trade at an earlier date than the company has ever previously marketed its products. It is now expected that the first fall deliveries will be ready early in October.

It is intimated at the office of the concern that some pleasing novelties will be offered the trade during the coming autumn.

OUR GROWING EXPORTS.

An increase of $626,085 is shown by the exports of automobiles and automobile parts from the United States for the seven months ended with July, 1905, over the first seven months of last year, the aggregate value of the exports from January 1 to July 31, 1905, being $1,780,281, as compared with $1,154,196 for the same period in 1904.

Automobile exports for the month of July, 1905, reached a total of $225,532, as against $183,180 for the same month a year ago, representing an increase of $42,352.

RECENT INCORPORATIONS.

The Wolverine Automobile & Commercial Vehicle Co., Monroe, Mich.; capital, $28,000.

Levake Motor Company, Seattle; capital stock, $50,000; incorporators, Anson Levake, H. F. Richter, C. W. Richie; organized to manufacture rotary motors.

The Quebec Auto Car Company, Quebec; capital, $20,000. Charter members are Gustavus George Stuart, K. C.; James Guthrie Scott, James Marmaduke McCarthy, Arthur Emile Doucet and Louis Guthrie Scott, all of Quebec.

Moore Automobile Company of New York City; capital, $200,000. Directors: Walter Roberts, Ridgewood, N. J.; Peter A. Gage, Joseph P. Casey and A. D. Webb, of New York City, and Hamilton J. Chapman, of Rutherford, N. J.

The Dominion Automobile Company, Ltd., Toronto; capital, $100,000. To manufacture, sell, repair, hire and deal in automobiles, motor boats and other self-propelled vehicles and machines. The charter members are Alexander Hector Beaton, Charles Lewis Wilson, John McArthur, James Barber and Charlotte Eveline Holland, all of Toronto.

Furnishing current from an electric automobile for stereopticon views is something unusual, but this is what occurred at the Racine Chautauqua grounds recently. It was discovered late in the afternoon that the current furnished of 550 volts was too heavy for the apparatus used in producing the pictures and it was about decided to give up that part of the entertainment when William Lund, who had charge of the apparatus, said that if someone would loan him an automobile operated by electricity he could so arrange the voltage as to give the views. F. Lee Norton loaned his machine, Mr. Lund regulated the current and the entertainment went on.—*Chicago Chronicle.*

The accompanying reproduction of an instantaneous photograph shows the speedy auto boat *Eunice* running at full speed on Lake Chautauqua, New York. She is 30 feet in length and 5 feet beam, and is fitted with a Brennan 16-horsepower horizontal four-cylinder gasoline motor. The little craft recently ran from the boat landing at Mayville to the docks at Jamestown, the entire length of the lake, a distance of more than 17 miles, in 63 minutes. The *Eunice* is owned by Frank O. Anderson, of Jamestown, New York, who holds the record for the lake.

Thomas W. Lawson, of Boston, has purchased the Pierce *Great Arrow* with which Percy P. Pierce won the Glidden Touring Trophy.

Thomas A. Edison has placed his order for a Grout four-cylinder gasoline car of 28-30 horsepower, to be delivered in October.

A new plant for the Springfield Metal Body Co. is in course of erection at Springfield, Mass., and will have twice the floor space of the old factory.

The Cincinnati chief of police has forbidden the use of chime or Gabriel whistles within the city limits, and has also ordered that no automobile be left standing in the streets for more than an hour at a time.

The Norwood Automobile Company has been formed in Cincinnati, with headquarters at 4141 Main avenue, Norwood, to handle the Wayne automobiles in Cincinnati, and Covington, Ky.

H. F. Borbein & Co., of St. Louis, have occupied their new quarters at 2111 North Ninth street. The new plant is of brick and iron construction, and is much larger than the former factory.

The St. Louis Car Co., of St. Louis, has completed a sample runabout, and is now testing the machine on the road. The car is equipped with a two-cylinder, air-cooled motor.

Manager Smith of the Philadelphia Rambler branch is promoting a Rambler parade, to be held at an early date, with the idea of giving the public an object lesson as to the popularity of the Kenosha factory's product in the Quaker City.

Entry blanks have been issued for an automobile race meet to be held at the Clifton race track at Paterson, N. J., by the North Jersey A. C. on Saturday, September 9. Entries will be received up to September 4 by Robert Beattie, Jr., secretary, Little Falls, N. J.

Owing to the growth of automobiling in Saginaw, Mich., the Norris Auto Company is now making its second expansion since last January, and will occupy an entire building. The office space will be doubled, an electric elevator put in and the facilities for recharging electric vehicles increased.

The plant of the Electric Vehicle Company at Hartford is being enlarged by the addition of a one-story building 250 by 80 feet. Fifty feet of the new structure will be used as an extension of the blacksmith shop, and the remainder will be utilized as a repair department. This addition is expected to be ready for occupancy in about six weeks.

The Paul Gaeth Automobile Company, of Cleveland, which for several years has manufactured cars in a small way, selling them locally, will branch out next season. Mr. Gaeth has secured ampe backing and plans have been completed for a fair sized plant to be erected in time for next season's business.

The racing launch *X P D N C*, purchased from the estate of the late Frank Croker by George J. Gillig, of Red Bank, N. J., has been entered in the motor boat races to be held on the Hudson River September 14, 15 and 16. A considerable number of entries have already been made, and it is thought that the list will be an unusually large one by the time the books are closed on September 4. The Department of Commerce and Labor has offered three revenue cutters to patrol the course. The starting point of the races will be off Ninety-seventh street, New York. Entries may be made with Hugh S. Gambel, secretary, 314 Madison avenue, New York.

Waldo Lincoln, L. H. Smith and H. L. Bean have formed the Bay State Automobile Company, in Worcester, Mass., and a large two-story brick garage, which, when completed, will be the finest in the city, is to be built at once at 38 Exchange street. It will be almost directly in the rear of the Bay State House, where the Worcester A. C. has headquarters.

The Detroit-Oxford Manufacturing Company, of Oxford, Mich., is now ready to go ahead with the manufacture of the Oxford automobiles, and as soon as the materials can be secured it is expected to turn out twenty-five cars per month. The company is capitalized at $100,000, 51 per cent. of which is held by Oxford business men. The factory starts with 100 men employed.

The first use of automobiles in Omaha for draying purposes is about to be made by the Metz Brewing Company, which has placed an order for one truck with a local firm, to be delivered for use some time in September. The machine will be used for making city deliveries of bottled beer. As competition among Omaha brewers is intense, the others are expected to follow suit as soon as possible.

The Haynes-Apperson Company, of Kokomo, Ind., announces that, dating from September 1, the name of the company will be changed to "The Haynes Automobile Company." Elwood Haynes,, the president and general manager, desires to be relieved of the responsibility of the management in order that he may devote his entire attention to the development of the mechanical features of the "Haynes" car, and V. E. Minich will become general manager.

The Forest City Motor Car Company, of Cleveland, a newcomer in the field, which is building in a small way a gasoline runabout of unusual type, is planning for a moderate sized factory building and may erect it in time for this year's work. The company's car closely resembles in every detail a small piano-box buggy, and is fitted with a two-cycle valveless motor. Rope transmission is used in conveying power to the two rear wheels.

The Wolverine Automobile and Commercial Vehicle Company has organized in Dundee, Mich., with the following officers: President, F. W. Gradolph; vice-president, H. C. Spaulding; secretary, Charles Stanger; treasurer, Seth Dixon; general manager, H. J. Hunt; directors, H. J. Hunt, W. B. Lafler, A. E. Unger and G. J. Shaefer. The new company takes over the plant of the Wolverine Automobile Company of Detroit, and will remove the plant to Dundee.

The Annable-Fitzgerald Engineering Company has been organized in Grand Rapids, Mich., to manufacture and market an automobile suspension system invented by Warren W. Annable, former master mechanic of the Grand Rapids Railway Company. The suspension consists of four vertical cylinders with pistons which take the place of the usual sidesprings, and are connected with an air-compressing pump so that the cylinders are kept filled with air, on a cushion of which the body rides. Pressure in a main tank is regulated by means of a gauge. Eastern capital has been interested in the project, and if additional local capital can be secured manufacture will be started in Grand Rapids.

The 7-horsepower Oldsmobile runabout *Old Scout*, in which Dwight R. Huss won the recent transcontinental race and incidentally the prize of $1,000, has been sold to H. Wemme, of Portland, Oregon. Mr. Wemme is a pioneer automobile enthusiast and holds the distinction of having owned the first machine in Oregon. It is very appropriate that he should now own the first automobile that ever reached Oregon overland from New York, having run the entire distance under its own power.

The St. Louis Motor Carriage Company has purchased the Seiberling property at Peoria and will take possession at once. This will bring to Peoria one of the most extensive automobile factories in the United States, and will employ from 300 to 500 hands. Owing to the limited capacity of their present plant, the St. Louis plant is able to employ but 150 hands, and is behind on orders. The manager of the company is Jesse French, Sr., who is also vice-president of the Krell-French Piano Co., of Newcastle, Ind.

Boston is to have another fine garage and salesroom on Huntington avenue. The building will be five stories in height, 75 by 125 feet, the entire front and rear of steel and glass, and will be fireproof. The salesroom will be on the main floor and will occupy space 60 by 40 feet. A feature of the new garage will be 90 box-stalls, in which cars may be kept upder lock and key by the owner. This building is being erected and will be occupied by Harry W. Doherty, who has been connected with the Franklin agency in Boston.

The Royal Motor Car Company of Cleveland announces that it is now putting the finishing touches on the last lot of 1905 machines, and that work has just been commenced on the 1906 model, which is to be so constructed as to have all parts interchangeable. Many new machine tools are being added to the shop equipment, and a new stock room, 60 to 90 feet, will be completed within the next few days. Across the road, on Marquette street, ground is being broken for a new erecting shop, 80 by 180 feet, a portion of which building is to be occupied by the Hyslop Body Company, recently incorporated.

An automobile sight-seeing service was started in Omaha on September 2, in charge of J. H. Daniels, who is interested in the venture with Gerrit Fort of the Union Pacific Railroad, and Frank Bacon of the Powell-Bacon Automobile Company, of Omaha. A regular itinerary of twenty-four miles will include Miller Park, Florence, Fort Omaha, Bemis, Turner, Hanscom and River View Parks, following closely the line of the boulevard system. The Union Pacific passenger department is arranging to advertise Omaha as a tourist resort and to announce that the automobile service has been inaugurated, as transcontinental passengers often have to wait from one to several hours in Omaha for train connections.

THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, SEPTEMBER 14, 1905—CHICAGO No. 11

AUTOMOBILE SCHOOLS IN NEW YORK.

THIS is the month when educational institutions of all kinds are opening throughout the country. Among these are the schools of instruction for automobile drivers—a branch of educational work that is just beginning the third year of its infancy. It is conceded that Boston took the lead in starting this new departure, but the Hub lost its premier position to New York City in two short seasons, so far at least as the number of such schools is concerned. Half a dozen or more automobile schools in the heart of Manhattan Island are just now announcing their openings for the fall and winter months, and, inasmuch

Class Attending Lecture on Gas Engine in Y. M. C. A. Auditorium.
General View of Work Shop Where Parts Are Studied and Assembled.

Giving Lessons in Driving Cars on Riverside Drive.
Studying Chassis in Y. M. C. A. Shop at Broadway and 63d St.

AUTOMOBILE SCHOOL OF WEST SIDE Y. M. C. A. OF NEW YORK IN LECTURE ROOM, SHOP AND ON THE ROAD.

as most of these are new and not well known, a canvass of them has been made with the object of learning just what a student may expect to get from them in return for his tuition fee; whether the instructors are qualified to teach, what the tuition fees are, the nature of the lessons, the length of the terms, the class hours and the facilities offered the student for study.

Unusual Character of Training.

Owing to the nature of the special knowledge to be acquired, the work of the schools is of necessity of an unusual character, partaking more of the nature of manual training schools and of clinics than of public school or college work. The avowed purpose of all of the schools is to impart to young men of a mechanical bent and special aptitude the particular knowledge required to enable them to operate and properly care for an automobile, thereby fitting them to take positions as chauffeurs. Only one or two of the schools attempts to go further and teach an accurate knowledge of the theory of the gas engine, carburation, ignition and the engineering principles involved in automobile construction. In fact, the work departs so much from ordinary educational methods that text-books are not employed in any of the automobile schools, no written examinations are held and the students are not even required to make drawings on blackboard or paper nor to work out arithmetical problems. All of the instruction is given orally, and in nearly all cases directly from the cars and component parts. In only one or two of the schools will regular lectures be delivered in a class-room, and in very few cases will these be previously written out, the lectures being in the main extemporaneous.

Road Instruction and Trouble Hunting.

Practical road instruction with the car forms a large part of the work of most of the schools, and, as the purpose is to teach the student not only how to run a machine but also how to take proper care of it and to locate troubles of all sorts, a considerable amount of attention is given to showing how to trace the causes of bad carburation, poor ignition and other engine troubles. Carrying the latter feature to its ultimate point, several of the schools purposely disarrange the carbureter adjustment or create short circuits or otherwise introduce a trouble which the student is required to determine and correct.

It is evident that such methods, if properly conducted by competent and conscientious instructors, should qualify a bright young man to become a chauffeur, either for himself or for an employer, provided the course is long enough to go thoroughly into all the functions of the various parts of the car and to fix clearly and unforgetably in the mind of the student the many probable causes of stoppage or imperfect running and the ways of determining and remedying them. Any person desiring to satisfy himself in this regard must take into consideration the intelligence of the instructors and their practical experience with cars of the different types.

Naturally, the schools devote most attention to instruction in gasoline cars, although any of them teaches the rudiments of steam and electric vehicles as well, and probably can give practical road lessons in the operation of either type.

Tuition fees range from $25 to $75, and terms of study vary from twelve lessons of two to three hours duration to a three-course term extending over five months in winter and spring. In one of the schools the students will be given instruction for five hours each day for five days in the week, during a period of four weeks; while in another only about six hours a week will be given to the work. Between these extremes one can get almost any arrangement of time for study he prefers, whether it be day or night, daily or weekly.

All of the schools will assist their graduates to obtain positions as professional chauffeurs, some being naturally in better positions to succeed in this than others, owing to their reputation and acquaintance among the trade and private owners.

Y. M. C. A. School the Pioneer.

The first school of the kind started in New York was that of the West Side Young Men's Christian Association, at 318 West Fifty-seventh street, and there is an interesting story in regard to the inauguration of the course in conection with the regular educational work of the institution. About two and a half years ago the Automobile Club of America, feeling the growing need of competent automobile operators and recognizing the possibilities opened to young men by the new pastime and industry if properly trained in the care and operation of cars, proposed to Columbia University the establishment of a branch of engineering and operation. The suggestion met with the approval of a number of the faculty and some preliminary work was done in planning a thorough course, but a conservative member of the faculty then strongly opposed the move because he thought that the conduct of such a branch of instruction would not comport with the dignity of the university, and the project was dropped.

The club then broached the idea to Pratt Institute, and later to the New York Trade School, but in both cases endowments were asked before the work was undertaken, and as the club had no direct or financial interest in the matter, it carried the suggestion no further. In the meantime, the Boston Y. M. C. A. began its course of automobile instruction, the first of its kind in America, and, noting its quick success, the A. C. A. suggested to the West Side Y. M. C. A. of New York a similar departure. After looking into the subject, the association agreed to take up the work without endowment upon the nuderstanding that the club would lend its influence to insure success.

Aid from Club and University.

With the aid of prominent members and officers of the automobile club and Professors Frederick R. Hutton and Charles E. Lucke, of Columbia University, Educational Dircctor Harrison S. Colburn of the Y. M. C. A. laid out a course of instruction in the different branches for last winter. The greatest difficulty met was the finding of suitable instructors—men of satisfactory character who knew the theory and practice and were able to impart their knowledge to others. The lectures on the theory and engineering problems of the different systems were delivered by Professor Lucke, while men in the tradc give a number of practical talks on such subjects as ignition, batteries, carbureters and tires. For the more strictly practical instruction along operative lines the educational committee engaged Clarence Bowne Brokaw, a graduate of Rutgers College in New Brunswick, where he had taken the electrical engineering course and who had spent several years in the business of installing electrical plants, supervising the installation of dynamos, switchboards and the erecting of the outside wiring systems. Later he had been manager of the Ranney garage in New York for two years, which position he gave up to devote his time to the Y. M. C. A. work.

The Y. M. C. A. innovation met with success from its inception, owing in large measure to the widespread publicity given to the work of the Boston Y. M. C. A. school and to the standing of the association throughout the country. The size of the classes exceeded all expectations, and during the winter there were more than 300 students who took the courses. The students were drawn from all ages and stations in life; at first an attempt was made to divide the students into owners' and chauffeurs' classes, but it quickly became apparent that any division was impossible, and the students were mixed indiscriminately, men of wealth and position in business and society rubbing elbows with young men of some mechanical aptitude and learning who were studying to become professional chauffeurs. The men of wealth attended the classes to gain a general knowledge of the mechanics of the automobile so that they might be better acquainted with the cars that many of them owned and frequently drove.

Many Owners Become Students.

Many of the students were prospective buyers of cars who desired to learn the rudiments of automobile theory and practice before becoming owners. As showing the large proportion of students who took the course with no intention of becoming professional drivers, it is said that of 235 students who completed the courses last winter only eighty took the final examinations that would entitle them to obtain certificates as chauffeurs. Among the students were several men activcly cngaged in the trade, including the manager of one garage and the vice-president of another.

The unexpected proportions attained by the classes soon made it necessary to expand the facilities for clinical work, and the association leased a two-story garage, or shop, 40 by 50 feet, at Broadway and Sixty-third

street, especially for the purpose, buying several well-known makes of cars to be studied from the chassis and to be used on the road.

These facilities have been retained and extended for the coming winter's work, the first term of which began last Wednesday night. Some changes have been made in the method of instruction, and instead of having technical lectures delivered by professors, most of the teaching will be elementary and of such a simple nature that none of it will be "over the heads" of young men who, while bright and having mechanical bent, are not graduates of technical schools. All mathematical work will be practically eliminated, and it will be kept constantly in mind that the purpose is not to teach automobile engineering, but to train men to know a car so as to be efficient operators and qualified to take proper care of it. Most of the lectures, therefore, will be given by Mr. Brokaw, who is director of the automobile department. Some of these will be delivered in the class-room at the West Side branch and others in the garage on Sixty-third street. A corps of six or seven instructors will help with the practical work in the clinics and give lessons in road driving. These instructors are all young men who have been graduated by the Y. M. C. A. school—a practice followed by colleges and by the Boston Y. M. C. A. in selecting their junior instructors. The management knows these men personally and the men know the methods of study and teaching in the school.

Divided Into Three Courses.

The coming fall and winter work is divided into three courses. Course I. comprises popular lectures on steam, gasoline and electric cars, illustrated by lantern slides and with blackboard work, delivered by Mr. Brokaw and supplemented with lectures on such topics as the general care of tires, use and abuse of gasoline and rules of the road, given by persons especially qualified by experience to talk on each subject. These lectures are given Wednesday nights during a period of three months beginning the first week in September. Tuition for the course, if taken separately, is $10. No one is privileged to take any of the courses, however, unless he is a member of the Y. M. C. A. or becomes one, the membership fee being $5 a year.

Course II. includes Course I. and in addition there is "garage laboratory" work for students who wish to become familiar with the construction and care of the various types of machines. This course runs for three months also, conjointly with Course I. Lectures and demonstrations are given in the garage, where the cars are dissected, the functions of each part explained and the numerous "diseases" and methods of correcting them studied. Machines are purposely "queered" and the students required to diagnose the trouble and apply the remedy. The classes are divided into groups, so that each student may be given personal attention. A period of about three hours each week is given to this course by each student, and the instruction may be in the forenoon, afternoon or evening, as arranged by the educational department. The tuition is $35 for the course, which, as previously stated, includes also Course I.

Course III. embraces road work with the cars, and is given in the spring term, covering a period of two and a half months. It is open only to men who have passed the examinations in Courses I. and II. The hours for lessons are necessarily contingent upon the weather and condition of the cars. Tuition for the course is $5, making the cost of the whole series of three courses $40, to which must be added $5 more by such students as are not already enrolled in the Y. M. C. A. membership.

What Is Taught in Road Driving.

During the road driving season in the spring term the student receives one lesson in operation each week, of a duration of an hour and a half. Only three men are sent out with each instructor, so that there is no overcrowding of the machines and each can see and try the various manipulations conveniently. Besides following up lessons in driving on the boulevard with operation in the heavy traffic of the avenues, special attention is given to instilling in the minds of the student the rules of the road and courteous consideration for other users of the streets. Particular attention is also taken to teach each student how to stop quickly in emergencies, a thorough drill being given in this, since it is held that "there is all the time you want for starting, but often almost none for stopping."

Principal Brokaw expects that 150 students will be enrolled in the first term this fall and that there will be more in the second term, which probably will begin about the time the first term closes, near the end of November. Many business men who are now out of the city will have returned then and be able to give the necessary time to attend the classes. The management also has under consideration the desirability of holding spring and summer terms, owing to the demands of young men who attend school and college in the winter and cannot take on the extra study then.

Employment Bureau Maintained.

To assist its students to remunerative positions, the association keeps a list of graduate chauffeurs, and recommends and furnishes certificated operators to employers. The supply of such operators has been wholly unequal to the demand during the past season, it is said. Certificates are given to applicants of approved character who pass the final examinations at the close of each term. Each candidate is required to give satisfactory references as to character and habits, and none is given a certificate until he has demonstrated his competency in the garage and on the road to deal with emergencies and to control both the machine and himself.

The accompanying reproductions of photographs show the methods of teaching in the class-room, in the garage and on the road. On the advisory committee of the automobile school are Dave Hennen Morris, president of the Automobile Club of America; W. E. Scarritt and Albert R. Shattuck, ex-presidents of the A. C. A.; Prof. Frederick R. Hutton, dean in the department of engineering at Columbia University, and E. T. Birdsall, of the technical committee of the A. C. A.

(To Be Continued.)

Military Automobiles.

Special Correspondence.

Paris, Aug. 31.—As the result of the competition for military automobile transport wagons incorporated in the competition held by the Automobile Club of France last month for all kinds of industrial vehicles, the French war department has just bought the first three cars figuring on the official classification. They are a Delahaye, which secured 1,606 points; a De Dion-Bouton, with 1,585 points, and a Gillet-Forest, which obtained 1,498. The competition of 1904 had to be abandoned, owing to lack of entries; this year no fewer than twelve wagons responded to the invitation of the Minister for War; and so keen was the competition, notwithstanding the severe nature of the regulations—during a seven days' run it was forbidden to repair or regulate motor or vehicle—that very careful selection was needed to draw up the official classification. It was stipulated that the Government should buy the first three and accord money prizes to the four following winners; but owing to the excellent quality of all the competitors the Minister of War accorded two additional prizes. The first nine wagons in order of merit are: Delahaye, Dion-Bouton, Gillet-Forest, two Peugeots, De Dietrich, Peugeot, Ariès, Latil. The three automobile baggage wagons just acquired will enter into service immediately. They are the only automobiles existing for transport service in the French army, but if they prove satisfactory others will be rapidly added to their number.

"Rulers Who Motor" is the title of a list of reigning personages addicted to automobiling printed in a French paper. It is stated therein that the king of England possesses a Daimler, Darracq and two Mercedes, one quite a late addition; the German emperor has three Mercedes and a Fiat; the czar of Russia a Darracq; the king of Italy a Panhard and a Fiat; the kings of Portugal and Spain both drive Panhards, while the queen of Holland has a Mercedes, and the king of the Belgians a Mercedes and a Mors. The shah of Persia owns two Gardner-Serpollet steam cars, and Prince Albert of Monaco a Mercedes.

From Boston to Norumbega Park and Back.

By ROBERT BRUCE.

ONE of the most popular and interesting of the short round trips in the Boston district is that to Norumbega Park and Tower, supposed to mark the first settlement of the Norsemen in America. A choice of several routes is available for this run, including practically all those which reach the many suburbs in the Watertown-Waltham-Newtons district. The park and tower are located on River street, on the west side of the Charles river, as you follow in a southward course along that river from Waltham, or north from Newton Lower Falls or Riverside toward Waltham.

Most Norumbega trips are planned to and from Boston with a general preference, at least one way, for that superb road system which connects "The Hub" with the district familiarly known as "the Newtons." This system is made up practically of Beacon Street Boulevard to Chestnut Hill Reservoir (5 1-2 miles), and a somewhat longer stretch of Commonwealth avenue extension to and through Auburndale to the bridge over the Charles river just beyond, immediately above the Newton Club boathouse

STONY BROOK RESERVOIR, CAMBRIDGE WATER WORKS, ONE OF THE BEAUTY SPOTS NEAR FORT NORUMBEGA, 400 YEARS OLD.

From Boston via Auburndale.

From downtown Boston take either Beacon street or Boylston street (on opposite sides of the Common and Public Gardens). If Boylston street, turn right at the end of the Public Gardens into Arlington street, four blocks ahead to Beacon street. Go straight out Beacon street across Massachusetts avenue, making left bend in crossing Commonwealth avenue (itself another direct way from the Public Gardens). After intersection with Commonwealth avenue, Beacon street crosses the overhead bridge over Boston & Albany railroad, and continues direct to Chestnut Hill Reservoir.

Bear left into the reservoir grounds and around the reservoir into Commonwealth avenue extension. A half circuit of the reservoir grounds will bring into Beacon street, leading to Newton Center, Waban, Newton Lower Falls, etc., but a nearly complete circuit will carry the tourist into Commonwealth avenue extension. Keep this fine thoroughfare—some grades but splendid surface all the way—to Auburndale. Pass Boston & Albany railroad station and continue same boulevard to bridge across the river a short distance beyond Auburndale. At intersection of River street, make right turn and keep a northerly direction on River street to Norumbega Park and Tower on left-hand side.

From Public Gardens, Boston, take Commonwealth avenue through the Back Bay residence district, direct through Allston and Brighton, crossing the Charles river shortly beyond. Same thoroughfare later becomes North Beacon street, which continues past U. S. arsenal, on right, to center of Watertown. Keep North Beacon street to Main street direct to center of Waltham. Thence Main street through Waltham to beginning of Weston street, but instead of keeping on to Weston, bear left into South street.

Pass (on left) the "Town Farm" and Mt. Feake Cemetery; then cross Boston & Maine railroad and Stony Brook—all the way on South street. Same thoroughfare continues past Roberts railroad station and the pumping station to intersection of River street. Norumbega Park and Tower are on the right side, near the junction of South street (from Waltham) with River street (from Auburndale and Riverside).

Points of Interest All the Way.

Whichever way the autoist makes this run he will usually find the roads excellent and in good condition from end to end. Some distance beyond Roberts Station, you come to Stony Brook Bridge, a pleasant spot. As the water comes tumbling down the stream over the rocks, there is an almost noiseless ripple, that is very acceptable after the noise and confusion of the city streets. Looking down the stream as it rolls toward the Charles, one can almost get a view of its junction with that river. which was once known as the Norumbega. The next turn to the right brings you in a a few rods to Stony Brook Reservoir, of the Cambridge Water Works.

This pretty sheet of water, about four acres in extent, covers the evidence of an extensive fish industry which it is said was conducted by Northmen. Fort Norumbega, which was nearby, was for a short time occupied by the Brentons, some 400 years ago, and many years earlier there was a large settlement of the Northmen in the vicinity. Returning to South street, the first wood road to the left brings you to Norumbega Tower, from the top of which is obtained a view that it would be hard for an artist or writer to justly describe.

Prof. Hosford erected the beautiful tower to mark the site of Fort Norembega, which was at the junction of the Charles river and Stony Brook. It was surrounded by a stockade and ditch, the latter of which still remains. The ditch is in places ten or twelve feet deep, much of it is graded and carefully paved with rounded boulders on the bottom and sides.

Beauties of the Site.

It would be hard to find a more tranquil picture of life and beauty surrounded by nature than that which is obtained from the tower top on a warm autumn day. The snake-like, winding course of the Charles

is dotted here and there with delicate canoes which skim and float along in accordance with the effort of those who paddle. The deep green foliage of the banks and surrounding country and the dark waters of the Charles make a fitting background for the brilliant pageant of boatmen and canoe ists. The thoughts of the spectators will drift back hundreds of years to the time when the Brentons occupied the surrounding country.

Elizabeth G. Shepard, in her guide book of Norumbega and Vineland, says Prof. Hosford chose this particular site for the tower because of the beauties of the site, but continues: "How beautiful it is indeed, and as we slowly mount the tower steps the view is charming beyond description. The gentle undulating country, the trees with their varying foliage and the river flowing by, reflecting the loveliness of shore and sky. Ever and anon a light canoe steals softly along, or a fleet of boats pass by." She also states that the Indians could not pronounce "b" without putting "m" before it, so that Norbega became Nor'mbega or Norumbega. It means belonging to Norway, once called Norvega or Norbega.

The country to which the Northmen came they first called Vineland. But many years after, when they had become merged more or less into the Indian people, and other explorers came, the answer to inquiries concerning the name of the country would naturally be Norumbega in the sense of belonging to Nor'mbega or Norway.

Return Trips to Boston.

Reversing the outbound trip first given, via Commonwealth avenue extension, these directions will be found sufficient:

Keep River street downward a short distance to intersection of South avenue; here turn right, cross bridge over Charles river and enter Commonwealth avenue extension. On same thoroughfare through Auburndale,

TOWER ON SITE OF EARLY NORSE SETTLEMENT

passing somewhat above (not through) Newton Center, to Chestnut Hill Reservoir. Bear right through reservoir grounds, then left into Beacon street, which keep direct into the Back Bay residence district of Boston. After crossing Massachusetts avenue, either Beacon street, Commonwealth avenue or Boylston street are direct to the Public Gardens and Boston Common.

Reversing the outbound trip given via Waltham and Watertown, these are the essential directions:

Go north on South street, passing Mt. Feake Cemetery and the "Town Farm," into Main street, Waltham. Keep Main street to and through center of city of Watertown into North Beacon street, passing U. S. arsenal on lefthand, direct through Brighton and Allston into Commonwealth avenue, a splendid entrance into Boston. Commonwealth avenue comes to an end at Arlington street—the Public Gardens immediately ahead. Turn right two blocks to Boylston street, or left two blocks to Beacon street, leading downtown on opposite sides of Boston Common.

Optional Run via Cambridge and Belmont.

Among the optional routes between Boston and Waltham is one via Cambridge and Belmont. Directions: From Massachusetts avenue, crossed by all avenues and boulevards west from the Back Bay district of Boston, keep out across Harvard Bridge, thence along same thoroughfare through Cambridgeport to Harvard Square (college on right), Cambridge. On past college, bearing left from Massachusetts avenue into Concord avenue immediately beyond.

Keep Concord avenue past the upper edge of Fresh Pond into Belmont, passing the station and crossing the tracks of the Boston and Maine railroad. After crossing railroad at Belmont, turn sharp left into Pleasant street, along with railroad to intersection of North street. Bear right on North street to intersection with Quince street, where bend left and go through Quince street to Linden Street and through Linden street into Main street, Waltham.

If the autoist going this way has plenty of time, it will pay him to turn left at the Fresh Pond driveway gate and drive along the right-hand shore, or make the circuit of Fresh Pond, coming out again on Concord avenue, thence as already directed. At the junction of Quince avenue and Beaver streets is the "Old Elm," a local landmark. From Waltham to Norumbega and return is identical with the latter part of the second route given; and one who wishes to make a

FOUNTAIN IN BOSTON PUBLIC GARDENS, ENTERED FROM BEACON STREET, COMMONWEALTH AVENUE OR BOYLSTON STREET.

return trip this way will have no difficulty in reversing the outbound description.

A widely different return route from Norumbega to Boston, possibly useful in planning round trips, is down River street, as if intending to connect with the Commonwealth avenue extension. But instead of turning left there, keep right short distance to crossing of East Newton street. Here bear left on East Newton street, coming soon under the Boston & Albany railroad tracks down into the Charles river intervale, crossing the Charles about an eighth of a mile above Riverside. At Newton Lower Falls turn left into Beacon street, a good road, but a stiff climb to the top of Chestnut Hill, then past Chestnut Hill reservoir on the way to Boston again.

The round trip between Boston and Norumbega will average about twenty-five miles in length, using any of the routes given in either direction. This makes it a very popular half-holiday outing. Slightly altered schedules will allow the driver to take in practically all the points of interest in the Watertown-Waltham-Newtons district. Strangers visiting Boston will find this one of the most interesting of short local tours.

Cars for Town Use.

Special Correspondence.

PARIS, Aug. 31.—As has already been announced, the Automobile Club of France is organizing a competition of automobiles for town use to be held during the Paris Salon next December. Every automobile taking part in the competition must be exposed at the show, where a section will be specially reserved for them. The practical test will take place on Thursday, December 21, when each car will have to cover a distance of 63 miles within the city of Paris.

Two classes are provided, one for gasoline and steam cars and the other for electrics, each of these two classes being divided into four divisions, namely: Cars selling at less than $1,000, from $1,000 to $1,600, from $1,600 to $2,400, and automobiles listed at more than $2,400. Every competitor must prove by his catalogues that the cars are actually sold at the price for which they are entered. The classification will be based on regularity of running, comfort, and elegance and finish in the construction of the body work.

The entrance fee is fixed at $80 for each car, but $40 of this may be returned to the competitors, $20 being returned for every car taking part in the competition and an additional $20 for every automobile having covered the 63 miles test in accordance with the regulations. The club is making the conditions as advantageous as possible in order to encourage the construction of this class of automobile.

The Grand Duke Cyril of Russia, the hero of so many romances, has joined the Bavarian Automobile Club.

Suggestions About Care of Cars.

BY G. A. RAGE.

AT the end of a day's ride, after shutting off the oil and gasoline feeds and taking out the safety plug (if any), it is best to wash the body of the car rather than leave the dirt to dry on hard. If a hose is available it should be played gently on all muddy parts, avoiding scrupulously, of course, anything tending to get water into the gasoline or to wet the battery, magneto or spark coil if these are insufficiently protected. The mud should thus be "melted" off, as it were. Follow this by sponging all painted work with a large sponge applied with as little rubbing as possible. When the body surfaces are clean, rub them down with a chamois skin wet and wrung dry, and follow with wet cotton waste or soft cloth. Finally, once a week or so, rub over with boiled linseed oil or turpentine and polish with a dry cloth. This will preserve the fresh appearance and high finish of the paint for a long time.

The upholstery can be cleaned with a damp cloth or with benzine. Protected portions of the chassis may be cleaned with a hose; but working parts of the motor and clutch are best wiped off with a bunch of waste soaked in gasoline. It is not necessary to go over every inch of the surface in this manner, and to do so would take more time than the man who cares for his own machine can generally spare; but the plugs should be cleaned, the make and break igniter box also, and the flywheel clutch and its thrust collar. If the contact spark is used, all parts of its mechanism should be kept as clean as practicable.

ATTENTION TO LUBRICATION.

Besides the foregoing, such items as to lubrication, etc., as call for daily attention, are generally fully covered in the instruction books. Among the parts calling for less frequent lubrication, the gears claim first place. For these, some makers recommend heavy crankcase oil, some ordinary machine oil, some a mixture of grease and oil. Any of these is good if properly attended to, but grease or heavy oil is the best for light cars of high power where the gear tooth faces are narrow and bear high pressure, which would squeeze out a light oil. Whatever lubricant is used should be cleaned out and renewed now and then, the frequency depending on how rapidly it turns back with the metal ground off from the gears, and on whether the shaft bearings are lubricated from the inside of the case or not. If oil is used the depth of the case under the gears will affect the matter also, by giving more or less chance for the metal dust to settle.

When removing the lubricant, it is best to wash out the case very thoroughly with kerosene before refilling. Very good results have sometimes been obtained by filling the case clear full with pure grease and leaving it for the entire season. If, however, the lubricant is thin enough to flow, only enough to touch the lower gears should be used, as otherwise the churning will be excessive.

The lubricant for the differential case (and bevel gear case, if shaft drive is used) may be forced in with a "grease gun" every 150 to 500 miles, according to the make of car.

INSPECTION OF THE MOTOR.

The discerning driver will not have failed to reflect that by a periodical inspection of the motor, or rather by the operator's keeping himself constantly informed of its condition, many of the unexpected minor troubles can be averted. For example, if the crank case is daily drained of oil and a measured fresh supply introduced, one is not likely to have sooted plugs chargeable to over lubricating by the splash system An immediate stop in case of failure of he circulation will save the necessity of grinding in valves or worse. A practised ear can save its owner a fruitless hunt elsewhere for trouble when a contact screw is loose or the battery weak.

Again, it is not difficult to know whether or not the valve stem keys or cotter pins are threatening to shear off, or whether the springs are showing signs of weakuess. A few spare keys and springs, and one or two inlet valves and cages, when the motor is fitted with the latter, are always good things to have on hand, since springs and other valve parts are always liable to break.

GRINDING IN EXHAUST VALVES.

If one is about to start on a long tour, it may be well to grind in lightly all the exhaust valves at least. Experience will show how much need of this there is likely to be.

Among the other parts of the car which will be the better for an occasional inspection, is the clutch. If of the conical, leather-faced type, its face must be kept free from dirt, oil and grease, any of which will make it slip. It should be wiped clean when necessary with a piece of waste thoroughly wetted with gasoline, and dressed occasionally with castor oil.

If the clutch leather is not sufficiently accessible to be wiped off with waste, it can be washed off by squirting gasoline on it with a syringe or "squirt gun."

CASTOR OIL FOR CLUTCH.

When castor oil is applied to a clutch leather, the car should not be used for several hours afterward; in fact it should be left over night to give the oil a chance to soak in and also to dry up. If the car is used too soon after applying the oil the clutch is liable to slip and burn the leather out. Castor oil can be applied by means of the "squirt gun" before mentioned. It is advisable after applying castor oil, to leave the clutch "out" or disengaged for a few hours to facilitate the absorption of the oil by the leather.

The use of resin is not to be recommended. If resin is used, it should be used very sparingly, as it is liable to make the clutch stick if used in any quantity. A sprinkle of fuller's earth is sometimes useful to make it hold. The spring should not be tightened unless absolutely necessary to prevent slipping. If the car has planetary speed change gearing, the latter will require no other attention than to oil frequently, keep clean and adjust as needed to prevent slipping. Too much oil here will do no particular harm.

A car with universally jointed propeller shaft should have the rearmost joint at least encased to protect it from dust and mud. Leather cases are made for this purpose, and inside the case the joint should be packed with grease.

Driving chains should be taken off about once a week, wiped clean, and soaked over night in kerosene. They should then be wiped dry and immersed in hot tallow for about an hour. After the chains have cooled and the tallow has dried, they may be put back on the car. They should be brushed clean at least once a day when in use, and graphite paste applied. The chains should run a little slack, but not too slack, and when adjustment is necessary care should be used to adjust both ends of the axle alike, so the wheels will run true.

Brakes to Be Inspected.

The brakes are among the most important organs of the car and should never be neglected on any account. If the brakes are not operated through an equalizing device, care must be taken to adjust both equally. They should never be allowed to drag, if, as usual, there is a support provided to keep them clear of the drums when not in action. Metal to metal brakes have a tendency to gather dirt, which causes them to fill and drag if not cleaned out now and then. Even the enclosed brakes are liable to do this, and if the car moves stiffly when everything seems free, the trouble may be at this point. Never use resin on leather or wood-brake linings.

Some steering gears are supplied with means for taking up wear in the worm or nut constituting the irreversible mechanism. This is desirable, but a good deal of lost motion may be avoided elsewhere in the steering by encasing the joints of the connecting links between the gear and the wheels in leather, and packing them with grease.

The death of the young automobilist at Newport, it is now asserted, was not due to fast and reckless driving, for "he was not going more than thirty-five miles an hour." We shall expect to hear next of the Brooklyn Bridge "jumper' whose death will be due not to recklessness but merely to "shock."—*Evening Post*, New York.

An international road race is to be organized for 1906 by the German Automobile Club, if government sanction can be obtained.

Road Test of Electric Automobiles.

From Our Own Correspondent.

PARIS, Aug. 30.—A few months ago the Automobile Club of France announced its intention of holding a touring competition for electric automobiles over a course from Paris to the seaside resort of Trouville, distant about 130 miles. Owing to lack of entries, however, the contest, which should have been held this month, had to be abandoned by the club. M. Védrine, who had originally entered for the competition and constructed two automobiles, resolved that, despite the official abandonment of the event, he would not lose the opportunity of showing what could be done by electrics on the high roads.

A test of two cars was accordingly arranged, and, despite unfavorable weather conditions, a start was made at 7 o'clock Saturday morning from in front of the Automobile Club de France in the Place de la Concorde in Paris. The two automobiles were a hansom cab and a landau, the former carrying three passengers and the latter four. Both of them are driven by single electric motor fitted on the rear axle. The motor, which is constructed by Jacquet. gives speeds varying from 6 to 28 miles an hour.

The three-seated cab weighs about 3,476 pounds and has a consumption of 60 amperes when running at 25 miles an hour on the level. At 70 amperes a speed of 28 miles an hour is attained. The battery consists of 1,540 pounds of accumulators, their capacity being 250 ampere-hours. The landau is rather slower than the cab, having only one battery of accumulators weighing 1,210 pounds, with a capacity of 210 ampere-hours. Its total weight is 3.960 pounds. Both cars are fitted with Continental tires.

M. Védrine himself steered the cab, in the interior of which were two passengers, and the landau with three passengers was piloted by the shop foreman. The town of St. Germain, about 12 miles out of Paris, was reached in 1 h. 10 s. by the cab and in 1 hr. 16 m. 25 s. by the landau. It was from this point that the run against time commenced, the timing being performed by officials on board a 24-horsepower Darracq. The first 52 kilometers were covered by the cab in 1 hr. 20 m., giving an average speed of 24.2 miles an hour. After a run of two hours twnety-nine minutes Evreux was reached, and immediately the electrics went into the municipal electric station to be recharged. The cab took its full charge in 3 h. 30 m. and the landau in 2 h. 45 m.

At 3 o'clock the second stage of the run was commenced. and Trouville was reached by the cab in 6 h. 7 m. 3 s., having covered the 117 miles from St. Germain to the sea in 5 h. 35 m. 13 s., being an average speed of 20.8 miles an hour over well made but hilly roads.

The landau, which is a rather slower vehicle and carried one more passenger than the cab, covered the total distance in 6 h. 56 m. 46 s., being an average speed of 16.7 miles an hour.

After a day's rest at Trouville, the return journey was begun on Monday, M. Védrine still piloting the cab with two passengers on board and one of the shop foremen the landau with three passengers. The first 30 miles had been successfully covered when a car that M. Védrine was about to pass suddenly placed itself across the road and blocked the passage. The brakes had to be applied with such force to avoid an accident that a sprocket was ripped and the electric was unable to proceed. The landau covered the return distance without mishap, the first stage, Trouville to Evreux, 71 miles, being traversed in 3 h. 45 m., being about 19 miles an hour.

After recharging, the afternoon journey of 80 kilometers was covered in 2 h. 34 m., or at the rate of about 19.2 miles an hour. The total distance from Trouville to St. Germain, including time spent in recharging, was 9 hrs. 19 m., being a gain on the total time spent on the outward journey, which was 9:41:46.

Now M. Krieger, head of the well-known company of that name and a business rival of M. Védrine, has made the trip with two vehicles, one a closed coupé, having two seats, and the other an open landaulet, with four seats, the weight of the former being 3,498 pounds and that of the latter 3.938 pounds.

The actual start was from St. Germain, a few miles out of Paris, the coupé being sent away at 6.02 o'clock and the landaulet at 6.05 o'clock. From the commencement high speeds were attained, the first kilometer being covered in 1 m. 17 s., and the first ten kilometers in 14 m. 7 s., whilst a kilometer on a stiff hill was run off in 1 m. 58 s. The last ten kilometers of the first half of the journey were covered in exactly eleven minutes.

At Evreux the two vehicles had to be recharged. It was calculated that the average speed for the 52 miles between Paris and that town was 28.08 miles an hour. On the level ground before reaching Evreux the kilometer was covered successively in times varying from 1 m. 17 s. to 1 m. 22 s. The heavier landaulet arrived six minutes after its companion, the coupé.

Recharging the coupé occupied 3 h. 11 m. and the landaulet 3 h. 7 m.. when both vehicles were started on the second stage of the journey. Rain. wind and heavy roads rendered running more difficult and the average speed was in consequence slightly slower than for the first stage.

Trouville was reached in 7 h. 21 m. 3 s. by the coupé, and in 7 h. 29.8 m. by the landaulet, which, deducting the time spent

recharging at Evreux, gives an actual running time of 4:10:13 and 4:22:8, the second half of the journey being covered by the coupé at an average speed of 28.05 miles an hour. In order to prove that his batteries were not run out, on arriving at Trouville M. Krieger covered a distance of 500 meters standing start in 29 2-5 seconds, an average of about 38 miles an hour.

Whilst this interesting run was being carried out, another and similar performance was being made by M. Védrine. The two electric automobile constructors, Védrine and Kriéger, have not seen "eye to eye" lately, and in view of Kriéger's attempt to lower Védrine's record, the latter resolved to take the wind out of his rival's sails by quietly leaving Paris ten minutes after him and arriving first at Trouville. He succeeded.

Starting from St. Germain at 6.12 o'clock with a four-seated enclosed coupé, weighing 3,960 pounds, including 1,540 pounds of accumulators, the Védrine car reached Trouville at 12.42 o'clock, thus arriving 40 m. 3 s. before its rival, which began the run with a 10 minutes' start. Védrine managed this by running right through from Paris to Trouville without recharging, the total distance being about 120 miles. The actual running time of the Védrine car was, from St. Germain to Trouville, 6 h. 30 m.; averaging about 18 miles an hour.

There is much complaint that bicycle riders and drivers of vehicles of almost all kinds do not carry lights at night. Few of the automobilists offend in this respect, and it is only fair that other vehicles should carry lights as well as they.—Sayville (N. Y.) *News*.

An automobile race meet will be held in connection with the State Fair at Salt Lake City this fall. An afternoon will be devoted to the sport, and the events will be run under the auspices of the Salt Lake Automobile Club.

De Dietrich Car Wins the Pyrenees Cup.

Defeats Mercedes Cars in Same Class by More than 1,000 Points—Brouhot Team Captures Regularity Cup.

By Our Own Correspondent.

PARIS, Aug. 29.—The last two days' runs for the Pyrenees Cup must have brought some changes into the final classification. On most of the previous days a maximum speed had been fixed by the jury, owing to the difficult roads being rendered slippery by rain. On the finishing days no such restriction was necessary, and as speed, together with regularity is considered in the classification, some very fast runs were made. The seventy-five miles to be covered on the seventh day of the tour were over fairly level roads, well guarded by troops, with, in several places, barriers as in the Gordon Bennett race; and, despite the fine rain which fell, averages of 40 miles an hour were maintained by many of the competitors.

The last day's run, from Pau to Toulouse, a distance of 125 miles, the first fifty of which were over ascending ground, with a few very steep hill climbs, and the remainder a gradual ascent to Toulouse, also witnessed high speeds, some of the 60-horsejower automobiles running at times at 50 miles an hour.

Only one incident marked the day's tour. A portion of a descent had been neutralized, and in consequence it was forbidden to overtake a preceding car. As the road appeared to be excellent, many of the competitors were annoyed at the speed restriction and broke the regulation, with the result that when the halfway halt was made there were numerous protests. After the cars were restarted an exciting struggle was witnessed between Cormier, the famous tourist of De Dion frame, and a Berliet car, the two running a neck-and-neck race for two miles at a speed of over forty miles an hour. It was a fine sight for the spectators gathered along the road, but the dust that was raised did not add to the comfort of the chauffeurs.

The fastest speeds were attained by the 40-horsepower De Dietrich driven by Sorel and a 60-horsepower Mercedes conducted by Bary.

An Ariès automobile driven by Coquart, while taking a turn at close upon forty miles an hour, was suddenly obliged to swerve in order to clear a small cart. The machine skidded, struck a tree, cutting it in two, and then overturned in the ditch. Two hours later the automobile was again running; the end of the axle bore the impress of the tree, but otherwise no damage had been done.

The finish of the tour was about seven miles out of Toulouse, and here all the cars were drawn up and sent in procession into the town in the order in which they had arrived. A doublt line of infantry and artillerymen lined the whole distance, and they were necessary, so great was the throng pressing on the roadside to see the automobiles pass.

One had not to wait long for official results, thanks to the good organization of the event; and the following day, in the presence of a crowd estimated at 50,000 persons, including no fewer than five members of the French Cabinet, prizes were distributed.

The 40-horsepower De Dietrich driven by Sorel—a winner in this year's Delhi-Bombay tour for the same concern—carried off the Pyrenees Cup, with 5,356 points, in the general classification, open to cars selling at $4,800. In his own class he had as competitors M. Bary's Mercedes, with 4,407 points; Baron Henri de Rothschild's Mer-

SOREL, THE ANGLO-INDIAN, AT THE WHEEL OF DE DIETRICH TOURING CAR WHICH WON PYRENEES CUP.

cedes, with 4,267 points, and M. Mercy's Gladiator, with 3,851 points. Only once in the seven individual daily runs did the winner fail to finish first.

In the fuel consumption test the De Dietrich also stood at the head of the list.

The winning car is of the 1905 model, with four cylinders of 4.9 inches bore and 5.5 inches stroke, with an actual horsepower of fifty-two. There are four speeds and reverse, with sliding-gear transmission and drive by side chains, cone clutch of large diameter, and sparking by magnets. The tires used were Michelin, 870 by 90 on front wheels and 880 by 120 on rear, fitted with Samson non-skid bands.

The Regularity Cup, for team of three cars, was won by Brouhot with 14,973 points; De Dion-Bouton came next with 14,438 points, and Pengeot third with 12,283 points.

Fifty-three out of the sixty-four starters finished the 812 miles of the tour, the first fifteen in the general classification being:

	Points.
1. Sorel (De Dietrich), $4,800 class.	5,356
2. Belleville (Brouhot), $1,600 to $2,400 class.	5,242
3. Didier (De Dion-Bouton), $1,600 class	5,038
4. Ballot (Berliet). $2,400 to $3,600 class	5,028
5. Richez (Brouhot), $3,600 to $4,800 class	4,944
6. Feuillot (Brouhot), $2,400 to $3,600 class	4,889
7. Marechal (Brouhot), $1,600 to $2,400 class.	4,842
8. Coujet (Darracq), $1,600 to $2,400 class	4,784
9. De Sambucy (Rochet-Schneider), $3,600 to $4,800 class.	4,759
10. Cormier (De Dion Bouton), $2,400 to $3,600 class.	4,720
11. Baron Petiet (Aries), $3,600 to $4,800 class.	4,713
12. Bardin (De Dion Bouton), $1,000 class	4,680
13. Laureau (Clément), $1,600 to $2,400 class.	4,603
14. Gillet (Fouillaron), $1,000 class.	4,553
15. Gauthier (Rochet - Schneider), $3,600 to $4,800 class.	4,532

Sorel, who won in the De Dietrich. is an Anglo-Indian. In addition to winning the Delhi-Bombay Cup in India he recently secured a good position in the commercial vehicle competition of the Automobile Club of France with a De Dietrich entry. He was accompanied in the Pyrenees tour by the Maharaja of Tikari.

They're telling of a Jackson county farmer who found an auto horn in the road one day and took it home and taught the chickens to recognize its honk as their feed call. Instead of calling them in the old-fashioned way the farmer or his wife would blow the auto horn. One day an automobilist passed the farm, going about fifteen miles an hour and tooting his horn. The chickens near the house took after the auto. and fourteen hens and three roosters ran themselves to death behind the machine. —Milton *Telephone*.

Details of Eliminating Trials Settled.

Twelve Cars Will Compete for Places on American Vanderbilt Cup Team—Descriptions of the Racers.

THE order in which the competing cars will be started in the American elimination trials for the Vanderbilt Cup race was decided by drawing lots at the Automobile Club of America, New York, on Monday evening, September 11, with the following result:

TABLE OF STARTERS.

AMERICAN CARS THAT ARE ENTERED FOR THE VANDERBILT CUP ELIMINATING TRIALS SEPTEMBER 23 IN THE NUMERICAL ORDER OF STARTING.

No.	Name	H. P.	Entrant	Driver
1	Haynes	50	Elwood Haynes, Chicago A. C.	Nutt
2	Pope-Toledo	60	A. L. Pope, Hartford A. C.	Dingley
3	Matheson	40	L. M. Palmer, Jr., L. I. A. C.	Mongini
4	White	40	R. H. White, Cleveland A. C.	W. C. White
5	Locomobile	90	Dr. H. E. Thomas, A. C. A.	Tracy
6	Christie	60	James L. Breese, A. C. A.	Owen or Robinson
7	Royal Tourist	40	E. D. Sherman, Cleveland A. C.	Jardine
8	Thomas	60	H. S. Houpt, Buffalo A. C.	Roberts
9	Franklin	60	E. H. R. Green, Dallas A. C.	Winchester
10	Matheson	40	C. W. Matheson, A. C. A.	Cooper
11	Premier	60	G. A. Weidley, A. C. A.	Weidley
12	Pope-Toledo	90	A. A. Pope, A. C. A.	Lyttle

The drawing was done in the same manner as the drawing for the order of starting in the race itself last year. A preliminary drawing was held to determine the order of precedence in the main drawing, and each man drew in his turn. There was a good deal of good-natured chaffing over the fact that the two Pope-Toledo cars were spaced almost as far apart as the numbers would permit; and the two Mathesons also drew numbers a long way apart. A number of the drivers were absent, and others drew for them.

Immediately preceding the drawing the Cup Commission held a meeting behind closed doors, at the conclusion of which the announcement was made that the distance for the elimination trials would be only four laps, or 113 1-2 miles, instead of being the same length as the race itself, ten laps, or 283 miles, as had been determined a short time ago. While the shortening of the distance may have a marked effect on the showing of some of the candidates, it does not necessarily follow that the final result will be affected, for the commission has reserved the right to select as cup defenders the five cars that it considers most suitable. regardless of position at the finish.

The trials will commence at 5 o'clock on the morning of Saturday, September 23, and will be over at 8 o'clock A. M. The racing cars will be allowed on the course every morning from 5:30 o'clock to 7:30 o'clock, but at no other time previous to the trials. Robert Lee Morrell, chairman of the A. A. A. racing board, gave the drivers a sensible little talk on the subject of fast driving, requesting them to be particularly careful not to cause any ill-feeling among the residents along the course or those who might drive over it, by tearing through villages at high speed or dashing past horses or pedestrians on the road. Mr. Morrell stated that while there were no police traps on the course, he had seen to it that the road would be carefully watched, and any driver making himself obnoxious in the manner referred to would be disciplined, and would probably be disqualified and rendered ineligible for both the trials and the race itself. Touring cars may be used at any time for the purpose of studying the course; but the same rules with regard to careful driving hold good as with the racers.

Walter Christie's long figure was seen moving around the club rooms with a slight limp. Reports had been circulated that Mr. Christie had been seriously injured when the heads of the cylinders of his rear motor blew out at Atlantic City; but he personally and cheerfully denied anything at all serious. The rear motor of the car will be removed and its place taken by a large gasoline tank which will assist in maintaining the even distribution of weight. The absence of half the power plant will reduce the power of the car from 120 to 60 horsepower; but Mr. Christie's intention was to use but one motor anyway, so that the accident does not affect the entry. The car will not be driven by Mr. Christie; either George Robinson or W. Owen will be at the wheel.

THE WHITE STEAMER.

The White steam car will be on the course this week, and will probably be driven by Walter C. White instead of Webb Jay, whose recent accident puts him out of the running for the time. This machine has not yet been exhibited to the public; but according to a statement made some

time ago by Webb Jay, it is very similar to the track racer, having a pointed bonnet containing the water tank in the extreme forward end. The power plant is similar to the regular White outfit, but more powerful; and the drive is direct to the live rear axle by propeller shaft. The big cylindrical gasoline tank is placed behind the driver's seat. It will have the characteristic White condenser in front.

Matheson Cars for the Race.

The two Matheson cars are twins, being exactly alike in every detail. While they are special racing cars, they embody the main features of the Matheson touring car for 1906. They have 40-horsepower motors with cylinders of 5 inches bore and 6 inches stroke. The most important difference between the new model and the 1905 type is that a three-speed sliding gear transmission is used in place of the individual clutch system which has heretofore been favored by the builders of this machine. Both cars will be on the course at the end of this week.

Pope Toledo Machines.

The two Pope-Toledo cars entered for the Vanderbilt Cup elimination trials—one to be driven by H. H. Lyttle and the other by B. F. Dingley—are much alike in their general features; they differ, however, in size, as Dingley's car, the same that he drove in the Gordon Bennett race, is of 50 horsepower, with four cylinders, while Lyttle's, a new machine built specially for the Long Island event, is of 75 horsepower and has six cylinders. The smaller car was put into the Toledo shops on its return from abroad, and has been given a thorough overhauling under the personal supervision of Dingley, while Lyttle has watched every step of the construction of his new machine. Each driver has minutely inspected every component part, and every possible precaution has been taken to avoid the slightest imperfection of material or workmanship. It is stated that both machines are made up largely of stock touring car parts, which are considered amply strong for the work.

An important feature in the Pope-Toledo cars is that they will have wire wheels for the sake of lightness; the wheels will have a diameter of 34 inches. The larger car is geared to a maximum speed of 90 miles an hour, and the smaller one to 80 miles an hour; it is understood that Lyttle has already had his six-cylinder machine on the road, and that it has attained a speed of 75 miles an hour. The cylinders of both cars are of the same size—six inches bore and six inches stroke. Radiator, circulating system, clutches and steering gear are of the standard Pope-Toledo type. Wheelbase is 103 inches. Chrome steel is freely used in both machines. A large aluminum bonnet will cover the power plant of each car. It is anticipated that the machines will be shipped to their quarters on the Long Island course about September 14.

The racing cars will be under the personal management of F. M. Keeton, of the Pope-Toledo works, who is already on the ground making the necessary preparations for the arrival of the racing party and the cars. Six supply stations will be established around the course for the use of the Pope machines. There will be a main base of supplies, in addition to the smaller stations, where a very complete stock of all requisites will be kept.

Premier Air-Cooled Racer.

A car that will be watched with much interest is the Premier air-cooled racer built for the cup race by the Premier Motor Mfg. Co., of Indianapolis. The Premier shares with the Franklin the distinction of being one of the first two air-cooled cars of the heavy-weight racing class ever built. It is but natural to expect that an air-cooled motor of 80 horsepower, which is the rating given the Premier engine, should possess features of novelty in connection with the means for cooling the cylinders; but an inspection of the engraving herewith reveals nothing more than the usual deep, thin flanges on the cylinders, heads and valve chambers. No fans are shown in the engraving, but as the car was photographed in an incomplete condition it is probable that a fan or fans will be used in the completed machine.

Apart from the engine, the car apparently contains no untried components. It has a pressed steel frame, hung on semi-elliptical springs; a propeller shaft and bevel gear drive; a three-speed sliding gear transmission, and a steel disc clutch. The seats are placed over the rear axle. The engine, however, is interesting in a number of details. The Indianapolis *News* gives the cylinder dimensions as 7 inches bore and 5 1-2 inches stroke, and the maximum speed as 1,500 revolutions a minute, at which speed the engine is said to develop 80 horsepower.

The manner in which the engine is supported on the frame of the car is peculiar. Notwithstanding the shortness of the stroke, the engine is very high and requires solid anchoring. For this purpose four arms are cast integral with the crankcase on each side and extend to the side frames, where they are bolted. These arms carry the bulk of the weight of the motor. The great mass of metal extending above these supports is steadied by wings, extending from the cylinders below the radiating flanges, to short pillars on the side frames, to which they are bolted. There are two of these steadying wings on each side of each cylinder—that is, four to each cylinder. The arrangement and method of attachment of the wings is clearly shown in the engraving.

The valves are all mechanically operated and open through the cylinder heads. The valve actuating mechanism is all placed along the top of the engine. There are five A-frames, spaced equally along the tops of the cylinders; the method of securing the frames to the cylinders assists in giving rigidity to the latter. The A-frames carry at their apex a shaft on which eight rocker arms oscillate—two arms for each cylinder. These actuate the valves. A second shaft, the camshaft, is carried in bearings in the centers of the frames. The camshaft, rotated by means not shown in the photograph, actuates the valves through the cams, short roller-carrying levers on which the cams make contact and the rocker arms. The rear end of the camshaft carries the timer in a position where it can be plainly seen by the driver. The carbureter is on the same side as the inlet valves, the left, while the exhaust leads down from the right-hand side of the motor.

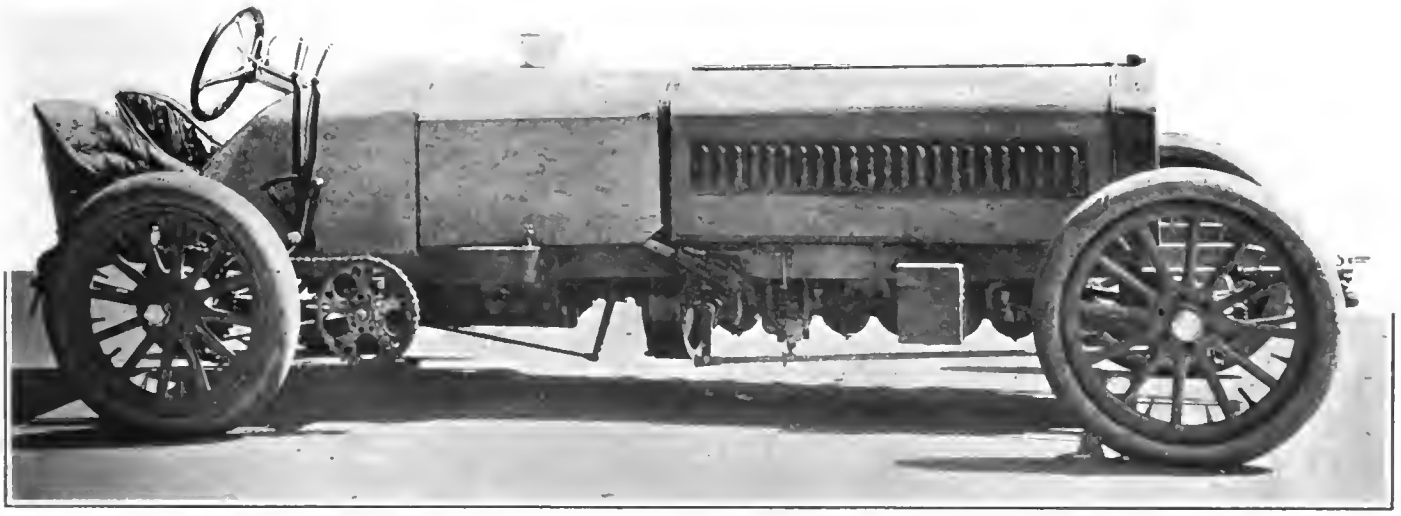
Ball bearings of the Mercedes type are freely used throughout the machine, and nickel steel is specified for many parts. The whelbase is 112 inches. Wheels are 34 inches in diameter, with 4-inch tires; the spokes of the wheels are made of hickory.

Georg Weidley, superintendent of the Premier factory, designed the car and is quoted as estimating its speed at a maximum rate of a mile in thirty-two seconds on a straightaway course; he believes the machine capable of averaging more than eighty miles an hour under favorable conditions.

Thomas Six-Cylinder Racer.

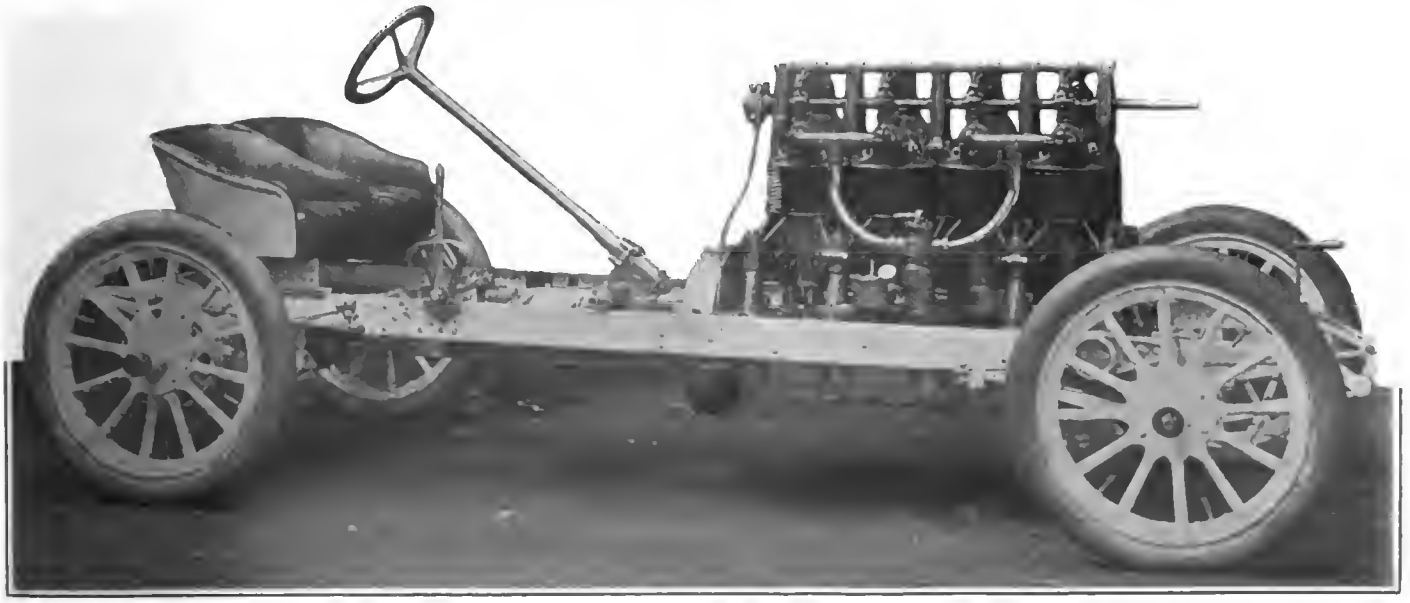
The special racer built by the E. R. Thomas Motor Co., of Buffalo, N. Y., for the Vanderbilt Cup race is a car that gives an immediate impression of being built for speed. The hood is extremely long, and the whole machine is low. The long, straight lines of the body and the placing of the seats at the extreme rear of the machine give it a decidedly racy and rakish appearance. The low hang of the machine is due to the fact that the springs are carried below the axles; and the bonnet, necessarily long to cover the six-cylinder motor, is made still longer by being extended backward, inclosing the space between the rear end of the motor and the dashboard, giving the car very long, clean lines.

The motor of 60 nominal horsepower has six vertical water-cooled cylinders, separately cast, with integral hemispherical heads and water jackets. A noteworthy fact is that the inlet valves are of the automatic type. The cylinders are placed very close together, and have square bases through which pass the studs by which the cylinders are secured to the aluminum crankcase; there are four studs to each cylinder. Valves are all located on the left-hand side of the motor, the automatic inlet valves above the exhaust valves; the caps over the inlet valves are held in place by yokes and studs; the loosening of a single set-screw permits the yoke to swing aside, when the inlet valve and the exhaust valve may be removed through the same opening. Each pair of valves has its individual yoke. The fuel supply pipes rise from the carbureter on the opposite side of the engine; there are three branch pipes, each supplying two cylinders through a tee in its extremity. Flanges on the ends of the tees

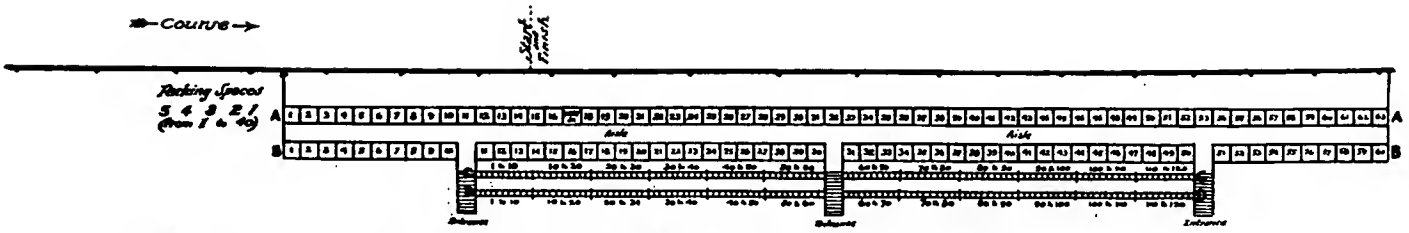


SIDE VIEW OF THE THOMAS (BUFFALO) VANDERBILT CUP RACER FITTED WITH SIX-CYLINDER 60-HORSEPOWER MOTOR.

THE HAYNES VANDERBILT CUP RACER FITTED WITH 50-HORSEPOWER MOTOR.



CHASSIS OF PREMIER VANDERBILT CUP RACER FITTED WITH FOUR-CYLINDER 60-HORSEPOWER AIR-COOLED MOTOR AND SHAFT DRIVE.



ACCOMMODATION PLAN OF THE GRANDSTAND FOR ELIMINATION TRIALS AND VANDERBILT CUP RACE ON LONG ISLAND.

are bolted to similar flanges on the inlet valve caps.

The cooling water is distributed to the jackets by a pipe running along the top of the motor and communicating with each jacket by a short tee; the pipe is composed of alternate joints of rubber hose and metal, the rubber being used to bridge the space from one cylinder to another. The circuit is completed by a metal pipe running along the right-hand side near the bottoms of the water jackets and leading to the gear pump placed at the front of the engine and driven by a two-to-one gear; the pump is capable of delivering twenty gallons a minute, and pumps into a honeycomb radiator containing seven gallons of water. The radiator is of peculiar shape; instead of having its lower edge on a level with the top of the frame of the car, as is the usual practice, it is narrowed and continued downward for a distance nearly equal to its height above the frame, thus giving a very large cooling surface and presenting a distinctive appearance.

Lubricating oil for the motor is fed into the crankcase by a force-feed oiler on the dashboard; and though all parts of the motor are lubricated by splash, chain oilers are provided on the crankshaft bearings and force feeds are connected with the cylinders as well. Crankshaft bearings are all of white bronze, 2 5-8 inches in diameter; the cranks are set at sixty degrees.

Each piston is fitted with five packing rings, four above the piston pin and one below, the lower ring acting as an oil distributor.

The long wheelbase of the car, 117 inches, necessitates a long frame; in order to prevent sagging and springing the side members are stiffened by angle steel braces riveted along in the channels. The motor is bolted directly to the main frames, so that the necessity for sub frames for this purpose is avoided. The countershaft that carries the driving-chain sprockets runs in outside bearings bolted to the main frames, which are spread well apart at that point so as to give a good support to the countershaft.

Transmission is through an all-metal disc clutch to a sliding gear giving two forward speeds and a reverse, operated by a lever on the right-hand side of the car. Both main and countershafts of the gear run in ball bearings, and the gears run in oil; a lead from the lubricator on the dashboard keeps the gearcase supplied with oil. The rear axle is of the "dead" type, the wheels being driven by chains from sprockets on the countershaft.

A worm and sector steering gear is employed; the steering wheel is placed in the position peculiar to racing cars. On the right-hand side of the steering wheel column is the ignition lever, and on the opposite side the throttle lever. A lever on the right-hand side, beside the gear lever, controls the brakes, which consist of bands contracting on drums on the rear wheels.

All the wheels are 32 inches in diameter, of the artillery type, and heavily built. The clincher tires are 4 1-2 inches in diameter on the rear wheels and 3 1-2 inches on the front wheels. All the wheels run on roller bearings. Hand forgings are used for the axles and the steering knuckles. The gasoline tank is cylindrical and contains 30 gallons; it is placed under the bonnet between the motor and the dashboard.

Ignition is by jump spark, current being supplied by two storage batteries placed on the right-hand side of the car. A Thomas timer, on the dashboard and driven by chain from the engine, is used in connection with a single vibrator coil.

The car is said by the builders to weigh 2,200 pounds, which is just four pounds less than the maximum weight permitted for cars of this class.

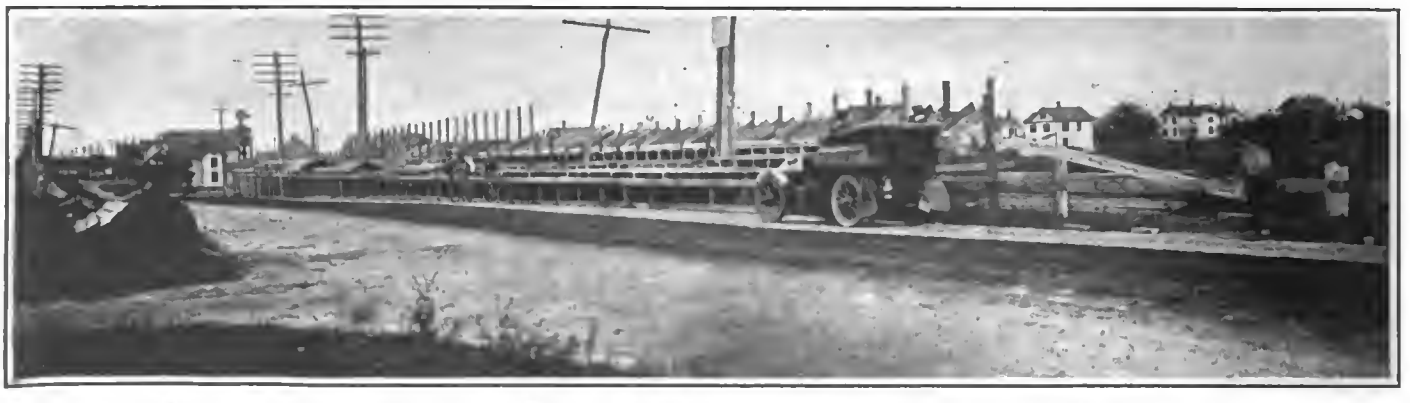
Haynes Racing Car.

Special Correspondence.

KOKOMO, IND., Sept. 9.—Kokomo will be represented in the Vanderbilt cup race by a special Haynes racing car of 50 horsepower, driven by Frank Nutt, with William Clark in the mechanic's seat. The car, its driver and mechanic are shown in the accompanying engraving. The machine has already been subjected to a number of road tests and has been found capable of a speed of seventy miles an hour. It was recently driven a mile in 1:24 on the half-mile track at Portland. The new racer has a very businesslike look, with its short open exhaust pipes sticking out through the side of the bonnet and the big, cylindrical gasoline tank at the rear, and it is believed that it will give a good account of itself.

Grandstand Arrangements.

Diagrams of the grandstand that will be erected for the benefit of spectators of the Vanderbilt cup race have been issued by Alfred Reeves, secretary of the grandstand committee, 29 West Forty-second street, New York. The arrangement of the seats, boxes and parking spaces for cars is shown by the accompanying reproduction of the diagram. The press stand, which will be located on the opposite side of the road, will be an improvement on last year's arrangement. There will be long rows of desks and seats with aisles between, so that ingress and egress will be comparatively easy. The stand is to be a "double decker" and will serve to accommodate the official



LOOKING ACROSS THE JERICHO TURNPIKE, LONG ISLAND, AT THE GRANDSTAND NOW IN COURSE OF CONSTRUCTION.

stand, telegraph office and telephone booth, in addition to the newspaper men's desks.

The prices of boxes, seats and the parking spaces will be the same for the elimination trials as for the race itself, viz., $50 for a box seating five persons, or $10 for a single box seat; $5 for a reserved seat; and $50 for a parking space for a car, which may carry its full complement of passengers.

Brasier Backs Out.

Special Correspondence.

PARIS, FRANCE, Sept. 1.—The following letter has been received by the president of the Automobile Club of France, announcing the withdrawal of M. Brasier from the Vanderbilt cup race:

VILLERS-SUR-MER, FRANCE, Aug. 29, 1905.

Dear Sir:

Owing to the uncertainty of the regulations for the Vanderbilt cup race, of which we cannot obtain final decisions, and of the chance which this event would bring into play on a circuit ridiculously too short; considering also the obligations we have created towards our numerous clients by reason of our recent successes, whom we are anxious to satisfy, we shall withdraw from this new event this year, it being understood that, even in case of victory, the Automobile Club of France will withdraw for 1906, as has already been announced by its council.

I have pleasure of informing you of this at once in order to allow the others qualified by the eliminating races to prepare in time if they wish to do so.

(Signed) BRASIER.

Make-Up of French Team.

Special Correspondence.

PARIS, Sept. 1.—With the Brasier cars already eliminated from the French Vanderbilt race team, the list of probable starters now stands as follows: 1., De Dietrich (Duray); 2, Renault (Sizsz); 3, Darracq (Wagner); 4, Panhard (Heath); 5, Hotchkiss (Le Blon).

Heath will be certain to avail himself of the opportunity of again competing for, or really defending, the Vanderbilt Cup; but the Hotchkiss car is a very improbable starter. The firm had never for a moment imagined that they would be called up to form part of the French team, and with the date of sailing only about three weeks off it would be almost impossible for them to be ready in time, even were they anxious to compete. In this case the fifth place will be taken by Darracq, who asks for nothing better than to send two cars to compete on Long Island. The driver will in all proba bility be Hémery.

At the time of writing official information has not been received at the Darracq factory advising them of their right to engage a second car in the race. All, however, is activity, and M. Darracq can be relied upon to move heaven and earth to have his complete team ready to sail by the proper date.

The De Dietrich and the Renault drivers, Duray and Sizsz, together with their two mechanics, have booked their passages on *La Lorraine*, sailing from Havre on September 23. Each driver will bring with him

M. BRASIER, THE FRENCH DESIGNER.

two automobiles. The Darracq firm have also the intention of sending their drivers on the same date.

Harmsworth Cup Race.

The Harmsworth Cup race—or, to give it the full benefit of its official title, the race for the British International Cup for Motor Boats—took place on Monday, September 11, in Arcachon Bay, on the coast of France. England winning with *Napier II*, and also taking the second and only other place with *Napier I*. France was the only other country represented, M. Thebron's *Mab*, a late entry, being the French craft; but she dropped out before the end of the contest, as did also the third English boat, *Brooke*, a 40-foot boat with a 6-cylinder motor of no less than 300-horsepower. America was not represented. Two American boats, *Dixie* and *Challenger*, were entered; but *Dixie's* owner apparently preferred to keep his boat in New York for the forthcoming National Motor Boat Carnival, while *Challenger's* career seems to be ended. Her motor has been installed in a sailing yacht, and the future use of the hull is uncertain.

The 30-mile course was covered by *Napier II*, the winner, in 1:32:26, or at the rate of a little less than 19 1-2 miles an hour. The time for *Napier I* was 1:33:32.

Arcachon Bay is said to be rather shallow and full of rocks and shoals, so that it is not an ideal place for auto-boat racing. Fine weather prevailed.

The automobile is making its way to the ends of the earth. In the upper part of Transkei (Kaffirland) a service of motor cycles has recently been established, ridden by natives, to carry the mails from Mount Frere to the outlying stations, and so on to Kokstadt, a distance of seventy miles.

Auto Boat Carnival.

Auto-boat racing of the highest order will be seen on the Hudson River in New York harbor on Thursday, Friday and Saturday of this week, September 14, 15 and 16, if the promises made by an entry list of nearly forty of the best boats in the country are fulfilled. Among the entries for the National Motor Boat Carnival are such craft as the new Western boats, *Winton* and *Six-Shooter*—the latter an Olds production; *Dixie*, with 150-horsepower motor, said to be capable of doing 31 miles an hour; *Den*, the new Herreshoff craft, much heralded and little seen, but credited with 40 miles an hour; *Shooting Star II*, the Lozier boat that won the Bourne trophy at the Thousand Islands; also *Flying Dutchman III*, *Panhard II*, *X P D N C*, *Veritas*, *Skeeter*, *Wizard*, *Durno*, *Rosebud* and others, including a large fleet of cruisers.

Racing will commence at 10 o'clock each morning, the starting point being off the foot of West Ninety-seventh street, New York City. Two triangular courses have been laid out, one of six and a half and the other of ten nautical miles. Thursday morning will be devoted to racing the cruisers and open boats, and in the afternoon the racers will be sent out. A long-distance race, from the starting point at Ninety-seventh street, up the Hudson River, to Poughkeepsie and return, will be the sole event on Friday. Saturday will be given over to a series of races for boats of all classes.

Interference with the racers will be guarded against by two United States revenue cutters, and all outside craft except the official steamer *Sirius* will be kept at least 200 feet away from the course.

A number of distinguished naval and army officers and citizens have accepted invitations from the officials in charge of the regatta to view the sport; among these are Rear Admiral Joseph B. Coghlan, U. S. N.; General Frederick D. Grant, General J. S. Wade, Hon. M. Linn Bruce, and Mayor George B. McClellan.

MICHIGAN LEGISLATORS' JUNKET.

Special Correspondence.

BENTON HARBOR, MICH., Sept. 8.—A novel use of twenty automobiles was made here to-day by sixty members of the Michigan State Legislature. The members belonged to the lower house, and were in attendance at a "peach festival" given by Representative S. H. Kelley, of the first Berrien County district.

The object of the festival was to convince the law makers of the importance of the county as a fruit-growing region; Berrien County producing nearly 50 per cent. of the entire state production of five different fruits. The orchards were visited by three different modes of conveyance; namely, trolley cars, automobiles and a boat on the St. Joseph river, a different section being visited by each.

Knox 6,000 Pound Air-Cooled Truck.

COMMENCING with a light delivery wagon consisting of a covered body placed on a regular pleasure car chassis, the Knox Automobile Co., of Springfield, Mass., has during the past two years turned out a number of successful commercial cars of various types, the latest of which, illustrated herewith, is a massive machine for a heavy class of work, having a rated capacity of 6,000 pounds, which it will carry at a maximum speed of ten or twelve miles an hour. The chassis is so designed that a body of any desired style can be fitted. Fig. 1 shows the machine with a stake truck body. Designs are being made for a passenger body of the familiar sight-seeing type, seating 28 persons; also for a transfer 'bus to carry eighteen persons inside and three on the front seat, with rear platform and side steps.

Generally speaking, the chassis is of the familiar Knox type, with the appearance of solidity and strength increased in keeping with the increased carrying capacity of the vehicle. The engine is a double opposed cylinder one, air cooled by the Knox threaded pin system; with cylinders of 5 inches bore and 7 inches stroke, and is rated at 16-20 horsepower. In keeping with the Knox design, but unusual for so heavy a machine, is the transmission, which is a heavy planetary one, giving two forward speeds and reverse. It is mounted on the engine shaft, and drives by roller chain to a countershaft carrying the differential; sprockets at the ends of the countershaft transmit motion to the rear wheels through chains.

The engine is rigidly secured to an angle steel sub-frame, and the sub-frame is supported on the main frame at three points. Two of these points are at the two rear corners of the sub-frame, where hinges are used; the third is at the middle of the front member of the sub-frame, and consists of a trunnion. Thus all twisting of the power plant is guarded against. This is considered particularly essential in a car that is expected to carry heavy loads over rough roads. The possible springing and disalignment of the countershaft must also be guarded against, and with this end in view the countershaft, which is made very much the same as an ordinary divided axle, is supported at each end in ball-and-socket bearings. Fig. 2 shows the outer end of the countershaft on the left-hand side. These ball and socket hangers have a slight fore-and-aft adjustment, so that the chain tension can be regulated.

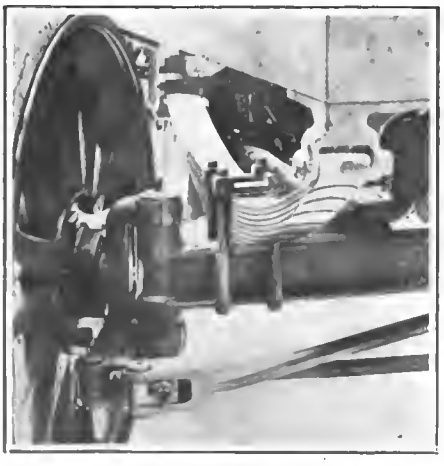


Fig. 3.—Steering Knuckle and Connections.

The main framing of the car is of heavy pressed channel steel 5 inches deep, with the spring hangers, brackets and other attachments hot riveted in place. The dead rear axle is a solid steel forging 2 1-2 inches square; the rear wheels run on roller bearings. The springs are of course very heavy. It wil be noticed by reference to Figs. 1 and 2 that the front and rear ends of the rear springs are attached to blocks that slide horizontally in hardened steel guides. This can readily be done because the springs do not have to transmit any of the driving strain, the drive being through substantial radius rods.

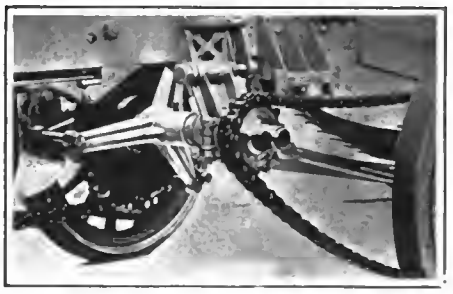


Fig. 2.—Countershaft End with Ball and Socket Bearing, Also Rear Spring Slide.

The front axle is of I-beam section, 4 inches deep and 2 1-2 inches wide and the steering knuckles and connections are heavy and substantial, as may be seen by Fig. 3.

The brake drums on the rear wheels are 16 inches in diameter; they are steel castings, made integral with the rear sprockets and bolted to the wheels with 14 bolts each. The brake shoes are of cast iron, expanding within the drums, a steel cable connecting the brakes with a hand lever placed beside the driver's seat.

Fig. 4 shows the controlling levers, which are similar in arrangement to the levers on earlier Knox commercial cars. The top lever on the vertical column operates the spark and throttle; the lower lever the two forward speeds. The left pedal operates the reverse and the right pedal the service brake of the transmission. The expanding brakes in the hubs are applied by means of the side lever working over a quadrant. The steering is of the screw and nut type, irreversible.

With the stake truck body shown in the engraving, the truck weighs 4,800 pounds; the chassis alone weighs 3,800 pounds.

Fig. 4.—Controlling Devices.

The machine tool carried on the platform weighs 6,800 pounds. The truck body is 12 feet long, back of the seat, and bas a maximum inside width of 5 feet 6 inches; outside the truck measures 15 feet 6 inches long and 7 feet wide. The wheelbase is 111 inches and the tread 60 inches. Wheels are 36 inches in diameter, the rear wheels having 5-inch tires and the front wheels 4-inch tires, all of solid rubber. All the springs are semi-elliptic; the front springs are 40 inches long and the rear ones 50 inches long.

The manufacturers state that no attempt has been made to introduce innovations, the truck having been built in the light of the experience gained from the use of earlier trucks.

Oxford Light Touring Car.

One of the many cars that have been placed on the market to meet the demand for a light weight, moderate priced touring car with ample engine power is the "Oxford," built by the Detroit-Oxford Mfg. Co., of Detroit, Mich. The machine has a double-opposed cylinder motor of 16 horsepower located in the front under a round-topped, vertical-sided hood; the cylinders are placed across the frame, the shaft lying fore and aft. A peculiar construction is used for the crankcase; instead of supporting the cylinders at their open ends, in the usual manner, the case extends outward and supports the cylinders at about the center of their length, the idea being that a more rigid engine is secured in this way. A three point suspension supports the engine, the bolts being attached to the crankcase. Crankshaft is of hand forged steel and the connecting rods of steel drop forgings. Valves are all mechanically operated and the cams are designed to give a quick opening and closing. The valves may be removed from the engine without disturbing the timing adjustments by removing two plugs and two pins. An automatic oiling device is incorporated with the crankcase cover, the lubricator dropping oil on

the camshaft, crankshaft and connecting rod bearings. Outside bearings are provided with compression grease cups. Gas is supplied to the engine by a carbureter of the float feed type.

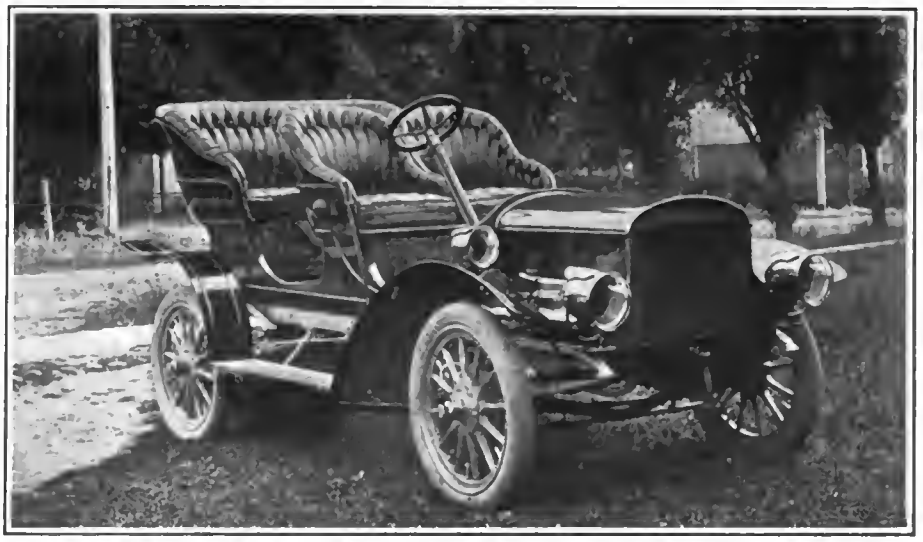
Power is transmitted to the rear axle through an individual clutch gear giving two speeds and reverse with the direct drive on the high gear. A single side lever operates the clutches of the gear. Throttle and ignition levers are placed on a quadrant under the steering wheel. A pedal accelerator is also fitted, acting independently of the lever on the steering wheel column.

Drive from the gear box to the live rear axle is by propeller shaft with a single slip joint. The ends of the live shafts of the axle are squared into the gears of the differential, which is of the bevel gear type. The differential case is a two-piece casting of aluminum; the live shafts, rear wheels and also the front wheels are provided throughout with roller bearings.

A solid drop forging of I-beam section forms the front axle. Semi-elliptic springs are used in front and full elliptic in the rear; the rear springs are not depended upon to transmit the driving strains, these being carried by stout radius rods. The main frames are of pressed steel and the cross frames of angle steel.

The steering gear consists of an internal gear and pinion, with provision for taking up wear. The brakes are located in the hubs and are of the internal expanding type, operated by a pedal placed near the foot of the steering wheel column.

A convenient feature of the Oxford car is the accessibility of the engine. The top of the hood is made to slide forward, thus uncovering the motor; all the working parts are on top, so that there is nothing about the engine to force the chauffeur to lie on the ground to make adjustments. Hand slides in the hood are provided for the purpose of getting at the spark plugs. Lock nuts and cotter-pinned nuts are used throughout the car.



OXFORD LIGHT TOURING CAR WITH DOUBLE-OPPOSED MOTOR IN FRONT.

The starting device, which is permanently attached to the frame, relieves the compression when the crank is pushed home on the shaft and when the motor is started the compression is automatically restored.

Wheels are of wood, 30 inches in diameter and fitted with 3 1-2-inch clincher tires. The body is of the surrey type, with two individual seats in front and room for three persons in the wide rear seat. Seats are upholstered in dark leather and tufted. The rear seat is detachable, and can be replaced by a capacious box for use in touring when extra passengers are not carried. A special type of box, of extra large size, is supplied for the use of traveling salesmen who need a car to carry themselves and their samples from place to place.

The gasoline tank, containing sufficient fuel for 200 miles' running under favorable conditions, is carried on the front of the dash, under the hood; there is also a reserve tank under the driver's seat.

The car weighs 1,500 pounds and has a wheelbase of 90 inches and standard tread. The manufacturers state that the speed is variable from three to thirty-five miles an hour. Two oil dash lamps, an oil tail lamp, horn with screen and tube, oil cans and tools are furnished with every car.

Automobiles are becoming so numerous in Lake City that a common old horse will hardly turn around to look at one.—Wabasha (Minn.) *Standard.*

Sim Biskford is the first farmer in this vicinity to get an automobile, and after this he will bring his eggs to town in a two-seated Cadillac instead of a surrey.—Exchange.

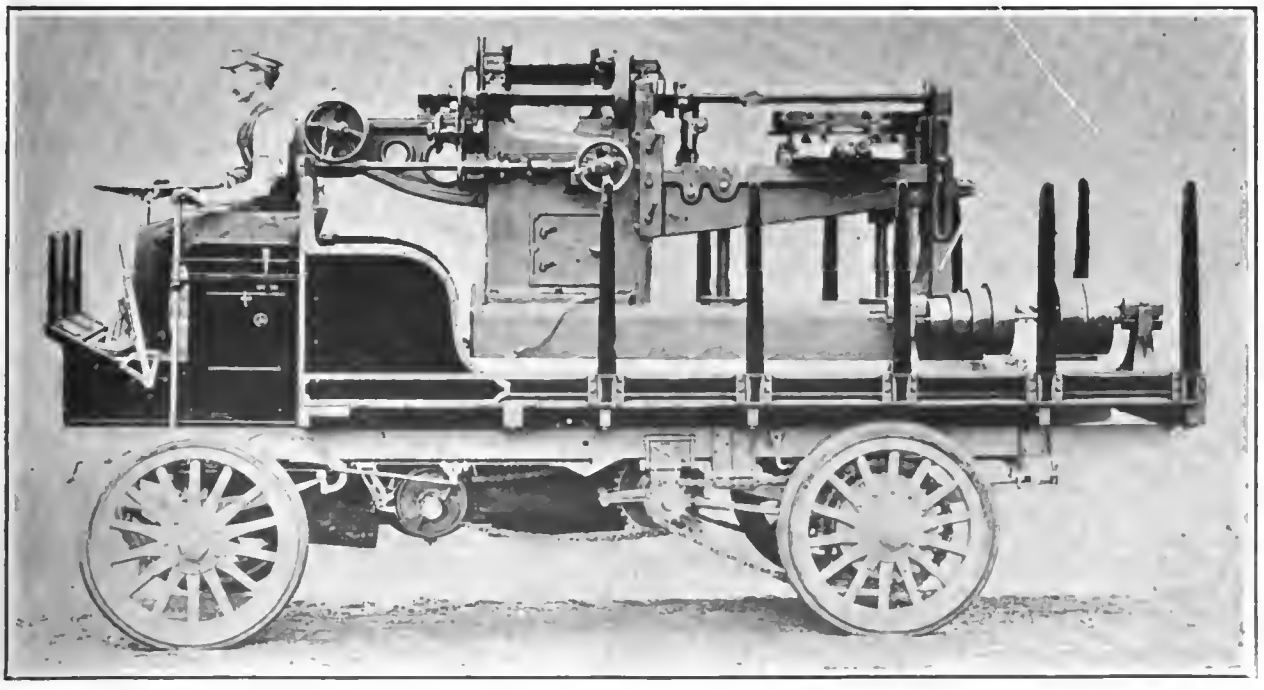


FIG. 1.—KNOX STAKE TRUCK WITH CAPACITY OF 6,000 POUNDS, FITTED WITH DOUBLE-OPPOSED AIR-COOLED MOTOR.

Letter Box

Success with Tire Chains.

Editor THE AUTOMOBILE:

[261.]—I read with much interest your editorial comments on the durability of attachments in the issue of THE AUTOMOBILE for August 24, and particularly that part in which reference was made to tire chains.

It may be interesting to your readers to hear of the satisfactory experience I have had with tire chains. I drove all last winter with the rear tires fitted with chain grips of my own devising, described in THE AUTOMOBILE early in 1904, but had trouble in procuring chains of suitable material. When the Weed chain tire grip, made by the Weed Chain Tire Grip Co., of New York, was introduced, I recognized it as what I wanted and procured a set. On December 8 I was caught thirty-five miles from home among the hills of western Pennsylvania in an eight-inch fall of snow. I applied the grips and drove home in three and a half hours, through drifts as much as eighteen inches deep. During the twelve days following that date I drove 843 miles, all in my practice, traveling over all conditions and grades of roads and up hills as steep as 25 per cent.

I have used the grips constantly for more than 1,200 miles, in snow, mud, slush and on hills up to 25 per cent. grade, and they give excellent satisfaction. They are fitted sufficiently slack to allow a little creeping, and there is not the least inqury to my tires and they show no marks from the chains, notwithstanding the hard work and great mileage. Convenient to carry, they remove all terrors of being held up on soft roads. My requirements are of the most exacting character, and these grips fill them perfectly. C. A. S.

Brownsville, Pa.

Overheating of Air-Cooled Motor.

Editor of THE AUTOMOBILE:

[262.]—In your issue of August 24, under "Handling of an Air-Cooled Gasoline Car," Mr. Haines states that an "air-cooled motor * * * will quickly become overheated as a result of a skipping spark." Again, that "a varying motor speed tends to cause heating."

Will you kindly have him explain why, in some terms a layman can understand? G. W. T.

Perth Amboy, N. J.

G. W. T.'s query is a very natural one, inasmuch as the statement that an air-cooled motor will become overheated quickly as a result of a skipping spark is, on the face of it, rather illogical. It is one of those peculiar cases where practice and theory clash, and perhaps he is justified in asking why.

In the 25,000 miles of road experience I have had with air-cooled machines, I have noticed that the motor became excessively overheated whenever the spark was irregular or skipped. But I am unable to say whether this overheating was present before the engine began to miss fire or not; the probabilities are that it was. Overheating, if caused by a skipping spark, would exist perhaps only in the cylinder or cylinders that were sparking properly, owing to the fact that they were overloaded and carrying the additional burden imposed upon them by the stoppage of another cylinder from its usual work. Of course, the cylinder which is not firing or which is missing explosions has no fire in it, or less than the usual amount, and cannot overheat. I am unable to advance any technical reason as to why a skipping spark causes overheating, but in every instance where the engine missed fire it has overheated badly. Perhaps some of our more technical friends may be able to help G. W. T. out in this respect.

So far as the varying of motor speed causing overheating is concerned, this applies to machines fitted with carhureters that do not adapt themselves quickly to variations of motor speed. An improper mixture is the result and overheating will occur. In engines in which the carbureter is responsive enough to keep the motor supplied with a constant mixture at any speed, the overheating danger need not be considered. H. B. HAINES.

Experience with Solid Tires.

Editor of THE AUTOMOBILE:

[263.]—I have just read in the August 24 issue of your journal the inquiry of E. P. M., of Zebulon, Ga., relative to solid tires, and your reply.

After having become disgusted with pneumatics I have personally tried about all of the solid and semi-solid tires during the last two years, and am now enjoying the fruits of that experience. I now start on my trips over the most difficult roads without the slightest apprehension on the tire question, and, while I have settled on a particular make of solid tire as giving me the best satisfaction, I have no douht there are others that are proving highly satisfactory.

In my earlier motoring experience I drove one of the 1902 cars having only a one-inch axle to carry a 1,250-pound car and its four passengers. I have driven the car hard and recklessly through the mountainous districts of Kentucky week after week, and its solid tires and one-inch axle are as good as ever to-day.

Prior to these experiences I entertained the common prejudice against solid tires, accepting the other kind without question. So far as the resiliency is concerned (and this seems to be the bugbear with the solid-tire critics, who, in nine cases out of ten, have never tried them), a pneumatic tire with sufficient air pressure for its own protection against rim cutting possesses too much resiliency for the actual welfare of the vehicle; there is a rebound from a jolt that is more injurious to the car than the jolt itself. On the other hand, with properly adjusted springs and a solid rubber tire, not too broad, there is a soft, cushioned effect given to the jolt without that rebound which is so trying on the springs.

After exhaustive and continued tests of the solid tire on both light and heavy cars during the past few years, and having followed closely the experience of a number of other motorists similarly interested, I am convinced beyond a doubt that the solid tire is going to be the tire of the future. That they have not been more extensively used on light runabouts is accounted for in the fact that most any kind of a tire will give satisfaction for a while where there is a very light weight to support. Manufacturers of solid tires, recognizing this fact, have not catered to this trade particularly, but have looked more especially after the users of large touring cars.

Finally, in your last statement you claim a loss of power as one of the results of the use of solid tires. Now, if this is really the case—and I seriously doubt it—the loss has not been appreciable in my experience R. M. F.

New Albany, Ind.

Tire Question Paramount.

Editor of THE AUTOMOBILE:

[264.]—I think everyone will agree with you that the "racing game" has rightly lost its interest for the automobiling public. The questions which interest it now are tires and reliability—principally tires.

Would you open your columns to a debate on the experiences of users of solid tires versus users of pneumatic tires? I, for one, have been reading conflicting letters in your Letter Box column. I also am having difficulties with a new set of tires. Shall I make a change in favor of solid tires or not?

I venture to suggest that light on this tire question in general is what the public is most interested in of all things pertaining to the automobile. C. B. H.

Toronto, Can.

The Letter Box department is freely open for a discussion of this subject by readers who have had personal experiences with the different kinds of tires; in fact, readers were invited only last week to write of their experiences with solid tires on pleasure cars. It should be kept in mind, however, that the requirements of owners differ greatly, and full details should be given as to type and weight of car, speed usually maintained, comparative comfort, loads carried, nature of roads traversed, and other factors.

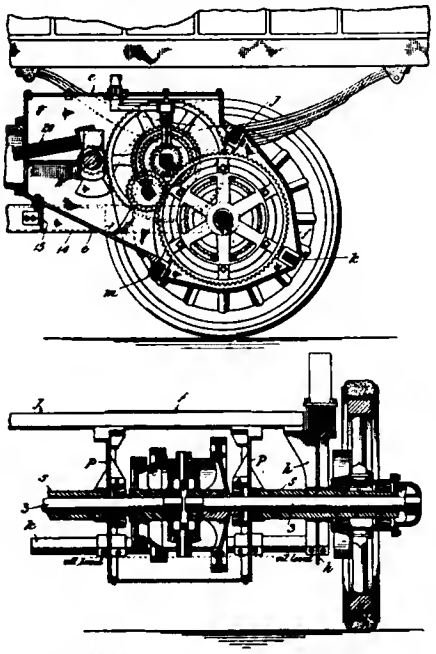
If the automobilist is tempted to run unnecessarily close to a vehicle or a person in the road, he should remember that his "close shave" is likely to be converted into a more or less serious accident if the vehicle or person makes an unexpected move.

Patents

Motor Truck.

No. 796,694.—Harry A. Knox, of Springfield, Mass.

This invention covers the framed casing for a double reduction spur gear transmission from a gasoline motor to the rear wheels of a heavy truck, as used in the new Atlas truck described in THE AUTOMOBILE for August 31. The side elevation shows the crankshaft *16*, connecting rod *20*, gears, and axle. The other view is a vertical section through the axle, showing how it and the casing and framework are related.



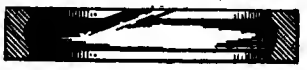
HARRY KNOX TRUCK CONSTRUCTION.

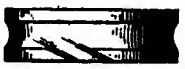
The spring pedestals *h* are steel castings, connected by transverse bars *j*, *k*, *m*, which also support the cast side plates *p p* of the rear portion *f* of the casing. The remainder of *f*, being under no strain, may be sheet metal. Extending on each side through *p*, *h*, and the wheel hubs are massive fixed sleeves *s s*, which carry the weight of the body and afford bearings for the wheels. The latter are driven by shafts *3 3*, which do not touch *s* and carry no bending load. The reach bars *14* are connected to the pedestals *h*, and also to the portion *e* of the casing by cross members *15*. Sliding gear speed changing mechanism is shown, with three forward speeds and reverse, but it is not part of the claims.

Carbureter.

No. 796,712.—W. Fergusson and C. L. Sheppy, of Buffalo, N. Y.

An automatic carbureter of up-to-date design. The main air stream enters the base of the fixed cone *k* and draws up around the adjustable spray nozzle *G*. The top of the cone is closed by the cap-shaped piece *L*, which has perforations *l l* in the top, which are always open, and others in the sides, which when the motor is at rest are closed by slipping inside the annular wall k^3. The suction lifts *L* and partly or wholly opens the side perforations, and also causes *L* to uncover the triangular





SACHS BALL BEARING.

apertures k^4, through which pure air can enter in greater or less volume—according to the suction—to dilute the mixture, thus preventing the latter from becoming too rich at high speeds. Pulsating of *L*, due to its inertia, is prevented by attaching it to the stem *m*, which works in the air dashpot shown. The float valve *b* is normally closed by the spring shown, and is opened by the weight of the float.

Ball Bearing.

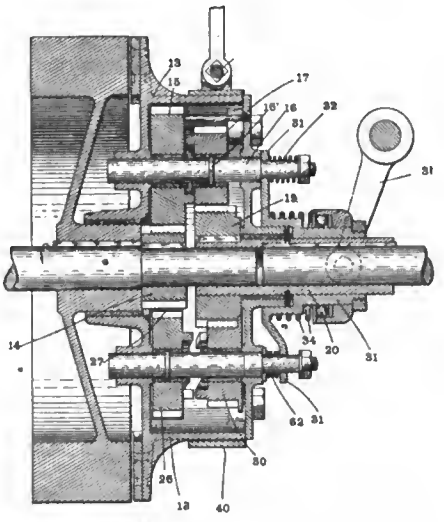
No. 796,871.—E. Sachs, of Schweinfurth, Germany.

A two-point bearing designed to avoid the necessity of notching a race and filling the notch with a removable piece to permit insertion of the balls. The end is accomplished by using two notches, each flush with the track in which the balls run, and inclined in opposite directions, so that the races must be turned to introduce the balls. Presumably they are slanted so that to insert the balls they must be turned in the direction opposite to that in which the bearing is regularly to run.

Planetary Gear.

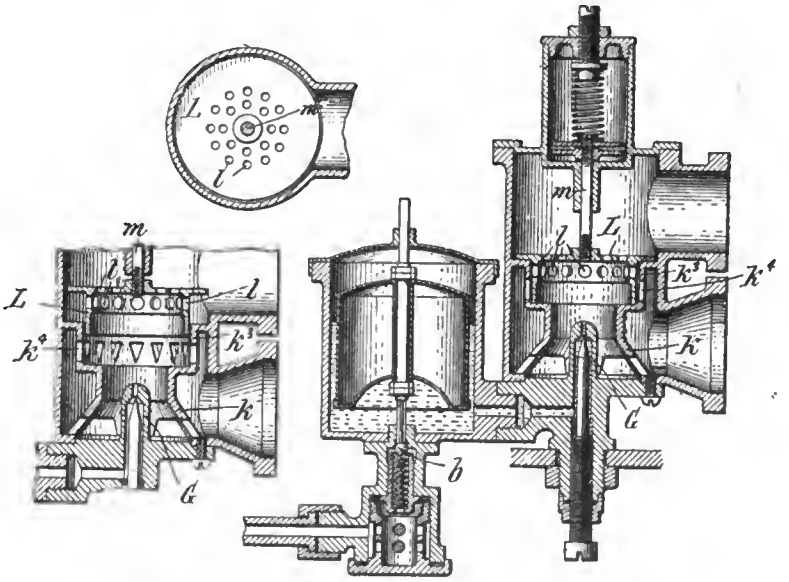
No. 797,001.—F. H. Heitger, of Indianapolis, Ind.

A planetary gear in which a single friction band is made to serve for both the slow forward and reverse speeds by the introduction of selective mechanism, which likewise operates the high speed clutch. In the drawing the power is transmitted from pinion *14* through *15* and *17* to *19*, and thence through the keyed sleeve *20*, for the slow speed. Casing *13* is revolvable on both shafts, as usual, and is held by band *40* for the slow and reverse movements. For the reverse, the transmission is from *14* through an intermediate pinion *27*, pinions *26* and *30*, to *19* as before. Pinions *15* and *17* are separate, but *17* is shifted to engage *15* by a claw clutch, its movement being derived from the yoke *31* through pin *16* and collar 16^1. Similarly, the contrary movement of *31*—which is shifted by arm *35*—releases *17* and engages *26*. For the sake of compactness, *31* is not connected rigidly to *16*



HEITGER PLANETARY CHANGE-SPEED GEAR.

and *25*, but engages them by positive pressure and releases them through the springs *32*, *32*. Leftwise movement of *35* beyond the position shown acts through spring *34* to force *13* bodily against the flywheel rim, locking the whole mechanism for the direct drive.



FERGUSSON AND SHEPPY AUTOMATIC CARBURETER.

THE AUTOMOBILE

VOL. XIII. No. 11

Published every Thursday by
THE CLASS JOURNAL CO.,
Flatiron Building, Madison Square,
NEW YORK CITY.

Cable Address - - - - Autoland, New York
Long Distance Telephone - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2.00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 5 o'clock p. m. Monday for the issue of Thursday following.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies Printed in 1904,	**639,200**
" " **This Issue,**	**13,500**
" " **Since Jan. 1,**	**514,500**

A Financial View of the Automobile. There are undoubtedly few persons connected with the automobile industry, and who have opportunities for observation, who have not been impressed with the absence of seriousness in the views of outsiders where these embrace the industry. Indeed, the superficial belief that the use of the automobile is a "fad" is held by a surprisingly large number of otherwise well-informed persons. This belief is not only prevalent among business men, but is held by many who follow the professions, and who might fairly be credited with intellectual acuteness. As a sample, not long ago certain influential members of the faculty of a great Eastern university decided not to adopt a course in automobile engineering, holding that such action would not be dignified, and would expose the teaching body to criticism, if not ridicule. Yet if there is any industry that needs a high degree of technical knowledge and skill in its development, it is the automobile industry. Whatever lead continental Europe may have gained is due solely to the laborious attention which the trained engineer, the chemist and the metallurgist have given the problem.

On the material side, the showing of the fiscal year ending with June, 1905, ought to convince the man in the street that the automobile industry, while an infant in point of years, is a pretty substantial and well-developed addition to the American industrial family. A very careful canvass has been completed by *Bradstreet's*, and is made the basis of an appreciative article in a recent issue of the bulletin of that authoritative financial agency. The result shows that during the year there were produced by 100 manufacturers 26,601 cars valued at $34,650,500, and estimates of the capital employed in the production of those machines aggregate $21,313,000. In the calendar year of 1904 there were produced about 17,500 cars, valued at $22,000,000.

As a means of measuring the financial importance of the showing for the year ending June, 1905, it is interesting to note that the value of the output of cars is nearly equal to the net earnings of all the American railroads for the month of May, the total of which was $34,974,074.

Another feature brought out by the investigation was the curious grouping of the plants, most of which are located outside the large cities, a fact which is often the subject of remark in the trade. In value of output the State of Ohio leads, and is followed in order by Michigan, Connecticut, New York, Wisconsin, Massachusetts and Pennsylvania.

In considering the mercantile importance of the automobile, the value of the domestic output must be supplemented by the cost of the imported machines, which in 1904 reached a total of $1,294,160. This year will show considerably larger figures.

In summing up, *Bradstreet's* says: "It (the automobile) has passed out of the domain of experiment, and is emphatically not the toy which some critics of it would like to have people believe. Certainly no such expenditure for a single toy has ever before been recorded." It is gratifying to note the growth of a proper appreciation of what the automobile means on the industrial side, at least.

✱

Anti-Graft Law Now in Effect. On September 1 the Saxe anti-graft law in New York State became effective. Our readers will recall that the law was passed at Albany last spring, and was signed in the month of April by Governor Higgins. Although often referred to as the "anti-tipping law," the measure is aimed particularly against a widespread form of "graft" in which commissions and "rake-off" discounts are paid to employees and agents without the knowledge and consent of the employer, with the object of influencing purchases.

The possible effect that this law might have in stopping the annoying practice of unscrupulous chauffeurs in making purchases of cars, fittings and supplies, and in ordering repairs of establishments from which they could secure the greatest profit to themselves on the transactions, was pointed out in these columns at the time of the passage of the law, and the organized dealers in New York City and owners throughout the State holding membership in clubs were shown how refuge could be taken behind the law to put a stop to the practice. Now that the law is operative, the members of the New York Automobile Trade Association are considering the advisability of taking concerted action to refuse to pay "commissions" to unauthorized persons on sales. Since the penalty for "grafting" works both ways, both the giver and taker of a bribe being liable to heavy fine, any garage keeper can quickly be forced into line with the organized dealers by bringing violators of the law into court. By rooting out this evil in the trade, free and open competition will result; and in time the private purchaser and owner of an automobile should secure the benefit of lower first cost and reduced maintenance and repair charges.

✱

Electric Autos for Interurban Service. Something of a revelation as to the possibilities of electric pleasure vehicles in long distance road traveling under favorable conditions is contained in the account of the recent trials of Kriéger and Védrine coupés and landaulets between Paris and Trouville, published in the preceding pages of this issue. Under suitable conditions of road and weather it was shown that passenger vehicles weighing with their storage batteries close to two tons were able to make the run of 130 miles from the French capital to the sea over well paved but hilly roads, with only one stop to recharge the batteries, and at rates of speed averaging from 16.7 miles an hour for the slower vehicles to more than 28 miles an hour for the faster machines. These speeds were not taken over short stretches of level road, but were average speeds for distances of more than fifty miles.

A Kriéger coupé, with two passengers, made the run of fifty-two miles from St. Germain, twelve miles out of Paris, to Evreux, in 1 hour 51 minutes, or at an average speed of more than 28 miles an hour, stopped 3 hours 11 minutes to recharge the batteries, and ran the remaining 65 miles to Trouville in 2 hours 19 minutes, making a total net running time of 4 hours 10 minutes for the 117 miles.

A four-passenger Kriéger landaulet weighing 3,938 pounds covered the first 52 miles in 1 hour 54 minutes, stopped to recharge for 3 hours 7 minutes and ran the remaining 65 miles in 2 hours 28 minutes, covering the 117 miles in an actual running time of 4 hours 22 minutes. Then, just to show that the batteries were not run down, 500 meters were covered in Trouville from standing start in 29 2-5 seconds, or at the rate of nearly 38 miles an hour.

An even more remarkable battery performance was that of the Védrine four-passenger coupé, which made the entire run of 130 miles from Paris to Trouville without stopping for recharging at all, the total running time being 6 hours 30 minutes from St. Germain to Trouville, or an average speed of a little more than 18 miles an hour.

The electric vehicle has been looked upon as a town carriage only, but the battery improvement shown by such performances holds promise of a wider range of usefulness for this type of automobile. In many New England and Middle Atlantic states the roads are good enough and the cities close enough together to make the use of electric machines for interurban travel easily possible. In fact, at the time of the recent Glidden tour an electric stanhope was driven all the way from Boston up through Massachusetts and New Hampshire to Concord under its own power, notwithstanding many miles of the road were very hilly and sandy.

✸

Grim Death Enjoins. A tempest in a teapot was caused recently in automobile circles by the announcement in the press that an injunction had been secured by the Association of Licensed Automobile Manufacturers restraining one W. J. Moore of New York from "making, using or selling" any automobile embodying any of the "inventions, improvements or discoveries" covered by the Selden patent. In a semi-official announcement sent out by the association, it was suggested that the action of the Federal court would be "likely to startle automobilists." It certainly seems to have had this effect, though, perhaps, not in the way intended.

The fact is that to the suit in equity instituted by the A. L. A. M. the respondent Moore, who was the owner of an imported car, did not make any answer, nor was he represented by any attorneys of record in the court. There being no person to contest the application for an injunction, the court granted it without any hearing or discussion of the merits of the suit—it was entirely an *ex parte* proceeding.

And while the mills of the Federal court were grinding, the respondent went away to Texas and there died. So, all things considered, this now famous injunction can hardly be considered a live issue—in fact it was stillborn.

The less humorous side of the affair is the hardship that the slovenly publicity which the daily press gave the proceeding may have worked upon the agent of the car in question in affecting his sales.

Lost Springs is strictly up to date, as it now sports an automobile—or, rather, John Gomer, our popular blacksmith, does. The insurance men are doing a rushing business, for everyone feels like they must have their lives insured while the devil machine is in town, for we might not hear its toot in time to scoot.—Marion (Kan.) *Headlight.*

Out in Nebraska the other day the sheriff jumped into his automobile and took after a bank robber who was riding a good horse. What is more, he caught his man. You may see "the passing of the horse" in this interesting episode, or, if you please, view it as a striking illustration of the opulence and style of Nebraska sheriffs.—Exchange.

THINKS SWISS ARRESTS JUSTIFIED.

Ex-Governor Brown, of Maryland, Although Arrested a Dozen Times for Exceeding Speed Limit in Switzerland, Says Authorities Are Right in Enforcing Law on Dangerous Mountain Roads.

Special Correspondence.

BALTIMORE, Sept. 11.—Former Governor Frank Brown, of Maryland, has just returned from a two months' trip to Europe, where he spent most of his time traveling through France, Germany and Switzerland in a De Dietrich touring car.

"We traveled all over those countries," said the ex-Governor, upon his return to this city. "We went up the valley of the Rhine and visited all the principal towns in France and Switzerland, including, Luzerne, Aix-les-Bains, Zurich, Baden-Baden and others. We toured through the northern part of France and through the Black Forest of Germany. The roads in Europe, especially in France, are simply superb. Think of mile after mile of road without a curve and with scarcely a pebble! France is the automobilist's paradise, and everything is done there to encourage the sport—no rules against speeding to annoy, for everyone keeps to the right and accidents are unnecessary and infrequent.

"In Switzerland it is quite the contrary. There has been a great deal of criticism recently over the alleged actions of the Swiss authorities toward automobilists, and I have heard many bitter things said against them, but I think this country has heard only one side of the question. An American, say, is arrested over there. If he is a man of prominence, the papers in this country get hold of it and the 'roasting' process begins, but there is another side to the matter.

"While the general sentiment of the Swiss people seems to be against automobiling, I believe that the authorities are perfectly just and fair in their treatment of tourists, and that reports concerning unfair play and trumped-up charges for the express purpose of annoying automobilists are greatly exaggerated. It is necessary that the Swiss guard their roads well, and stop all illegal speeding. The roads run up and down, down and up, with a high mountain on one side and a steep precipice to river or lake, formed by the melting of glacierial snows, on the other side. The beds of the roads are remarkably good but the roads themselves are very narrow and the curves are sharp and close together. The people use their thoroughfares, which are maintained at large expense, constantly, and there is no doubt in my mind or in the mind of anyone who has seen the country, that danger is extreme, and that the chances of accidents from over-speeding are ten to one unless the driver be a man of marked caution. The Swiss are merely protecting themselves and their families.

"Foreigners are touring Switzerland in great numbers. I saw more automobiles there in one day than I have seen in New York City in a similar period. I am sorry to say that few of them contained careful chauffeurs. Arrests are momentary occurrences. The authorities have their roads looked after by guards stationed at certain spots, and upon these men devolves the duty of arresting all violators of the law. If a person in a carriage holds up his hand and the motorist does not stop at once, he is promptly pounced upon. If he is exceeding the speed limit, he is taken in charge. The fines which are imposed by the magistrates go, so it is said, to pay the wages of the guards and to maintain the roads.

"I was arrested in Switzerland something less than a dozen times," Mr. Brown continued. "In fact, I think I was arrested every day I went abroad there. Each time I deposited $40 collateral for my appearance next day, but I forfeited the money always, as time was precious. I am inclined to believe that few automobilists who are arrested return to be tried, and I think that the $40 bail asked is looked upon as the fine. In every case I was arrested for illegal speeding, and, frankly, although I did not know it then, and speeding over the limit certainly was not intentional on my part, the charge was just. After a long, heavy climb upward, the relief upon reaching the top and the sight of the smooth road on the down grade is a temptation hard to resist, and I suppose I fell. I don't mean to say my speed was reckless—it certainly would not have been on the roads of France—but on the narrow, winding paths of Switzerland, mountains on one side, water on the other, almost any rate is dangerous, not alone to others whom you may meet, but also to yourself. The manager of a hotel in Luzerne was killed while riding in an automobile along a mountain path. In many places between your machine and the glacier streams there is only a stone wall to the top of which runs the dirt of the road in a gradual up-grade. The hotel man, driving around a curve at pretty fast speed, threw on his brakes too suddenly, and skidded against the wall. The pressure crushed down part of the wall and sent his car over the precipice.

"I have no grievance against anybody for my treatment in Switzerland; indeed, if anything, my sympathies are with the people in their fair fight for their safety and the safety of their families. If automobilists were careful—and I take myself to censure, too—I know that Switzerland would hold out her hand and give the motor car glad greeting."

The ex-Governor will return to Europe within a month or six weeks and when he comes back to America again, he will bring with him the De Dietrich car and a French chauffeur. At present his machine is in a European garage awaiting the arrival of himself and his party.

PITTSBURG TAX COLLECTION WAR.

Special Correspondence.

PITTSBURG, Sept 11.—Levying a tax and collecting it are two different things, as Murray G. Livingstone, chief ordinance officer of the city of Pittsburg, has learned in trying to collect the tax lately levied on automobiles by the city. The owners regarded the tax unjust and fought it in the courts. There are estimated to be about 1,000 automobiles in the city. On fully 300 of these, it is reported, the tax has not been paid. The majority of the owners, however, decided to pay the tax this year and await legislation next year to relieve them of the added financial burden, but these 300 are going to be hard "comers."

Officer Livingstone says his chief trouble is in finding the right people upon whom to serve summonses issued against the delinquents. Apparently nobody owns an automobile when he goes after them. So many men have been out of the city and so many autos are being run and looked after by comparative strangers that there is some ground for the excuse. Not a few of the automobile owners, however, have flatly refused to pay the tax. Unless some fees come into the city treasury during the next two weeks, steps will be taken to force the delinquents to pay or give up all claim to automobile privileges.

GOOD RACING AT READVILLE TRACK.

Bay State Associations' Postponed Meeting Decides Ownership of Herald and Moxie Trophies and Results in New Track Record.—Light Steamer Goes Through the Fence.

Special Correspondence.

BOSTON, Sept. 9.—A new track record, the permanent ownership of the two principal racing trophies of this section decided, and several contests of the closest kind are, in brief, the results of the race meeting of the Bay State Automobile Association, originally scheduled for Labor Day, but on account of bad weather, postponed and held this afternoon on the Readville track.

As is almost always the case in postponed events, the attendance suffered, but the entries were more and better, if anything, than on the earlier date. There was a fair attendance, especially of automobilists, and the sport was excellent. Several events had that quality of uncertainty that makes a horse race interesting, and there were few walkovers due to cars going wrong.

Only one untoward event marred the day's racing. That was the wreck of the Stanley car, driven by Bert Holland, in the second heat of the ten-mile *Herald* trophy race. Holland had as opponents, Cedrino, with the Fiat, and Hilliard with the Napier. In the second mile at about the five-eighths post Cedrino was in the lead and Hilliard was second. Suddenly the steam car that Holland was driving was seen to wobble, then slow up and crash through the fence. Holland jumped or was thrown free and was uninjured, but the car was wrecked. The cause was a collision between the front wheel of the Stanley and the rear tire of the Napier. As the crowd rushed upon and across the track Cedrino and Hilliard were stopped but afterwards finished the heat.

A new record for two-cylinder cars was made by J. W. Ward with a stripped Buick. He went against his record of 6:28 2-5 for five miles, and on the oiled surface succeeded in cutting down the mark for the distance to 6:19 3-5. The new track record was for one mile and was made by Barney Oldfield in the second mile of the first heat of the national championship race. The *Green Dragon* circled the track in 55 4-5 seconds and made the five miles in 4:55 1-5. In the final heat of the championship, Oldfield won and reduced the time to 4:52. This victory puts him in the lead on the national grand circuit. Cedrino made the going for the champion in the final heat, but was beaten by a quarter of a mile. Durbin's Stanley was a half-mile behind at the finish.

The victory of Basle in the *Herald* Trophy race gives this cup to H. L. Bowden permanently, as he won the first race a year ago last spring at the Massachusetts Automobile Club races. Basle did not secure the trophy without a struggle, however, for both Durbin and Cedrino gave him a tussle. In the first heat it was nip and tuck, first between Basle and Crowell with a Stanley, and then between Basle and Durbin, also with a Stanley. In the sixth mile Basle and Durbin were on even terms and Basle with Bowden's 90-horsepower Mercedes won by only a quarter mile over the little steamer. The second heat went to Cedrino after Holland was wrecked and Hilliard dropped out at the end of eight miles. In the final Basle drove a pretty race and gained slowly and steadily over Cedrino, winning by three-quarters of a mile in 9.34.

Hilliard and the Italian came together in a ten-mile pursuit race. The Napier led for four miles, but went wrong and dropped out at the end of six miles. Cedrino's time for five miles was 4:55 3-5.

The Moxie cup for two-cylinder cars, is now the property of the Electric Vehicle Company. With a two-cylinder Columbia on Memorial Day, H. P. Maxim won the first race for the cup. With the same car to-day Eddie Bald captured the second race and took the cup. The event was run in two preliminary heats and a final. In the first heat were the Columbia, H. J. Stevens' Buick and Leon G. Morrill's Winton. Bald won without difficulty in 7:14, with Morrill second. In the second heat were F. E. Wing's Queen, C. L. Hoyt's Rambler and W. H. Lodge's Yale. The Queen had a good lead for a time, but had trouble and stopped, allowing the Yale to win in 9:12. In the final Bald won by half a mile over Morrill, nearly a mile over the Yale and more than a lap over the Rambler in 7:10 3-5.

One of the most interesting events was the ten-mile for cars of 24 horsepower or less. There were five starters. A. R. Bangs with a stripped Franklin, H. Ernest Rogers with his Peerless, C. B. Grout with the new Grout gasoline tourist, H. M. Snow with an Acme and Fred E. Hoyt with a Clement. Hoyt dropped out in the second mile and though Snow stayed in to the finish he was not a factor in the contest. With the other three, however, it was horse and horse, the lead changing in almost every lap. Bangs had the advantage on the turns and Rogers and Grout on the stretches. Rogers won in 17:05 4-5 by a quarter of a mile over Grout. Bangs was third.

The ten-mile event for American stock cars was a close race and demonstrated the staying power of the steamer, for Frank Durbin, with a 20-horsepower Stanley, won in 12:11 over George G. Reed, with the 40-horsepower Stearns, and Harry Wolover, driving a 35-horsepower Columbia.

Reed won the five-mile race for four-cylinder cars not over 40 horsepower, defeating the Columbia and the Franklin.

Oldfield drove two exhibitions, one of three miles with the stripped touring car and one of five miles with the *Green Dragon*. The latter was driven when it was almost dark.

Barney Oldfield in Green Dragon. *Frank Durbin in Stanley Steamer.* *Emmanuel Cedrino in Fiat Junior.*

START OF FINAL OF FIVE-MILE NATIONAL CHAMPIONSHIP RACE AT READVILLE TRACK, BOSTON, SATURDAY, SEPTEMBER 9.

STRAIGHTAWAY RACING CIRCUIT.

Special Correspondence.

PHILADELPHIA, Sept. 11.—Leading automobilists, of this city, in conjunction with the clubs at Atlantic City and Cape May, are quietly taking the necessary preliminary steps toward the formation of a beach-racing circuit, to include the two places named, with possibly Avalon and other places where short-distance straightaway races may be held. The idea is to have races at Atlantic City and Cape May twice a month next season, during June, July and August, and at the other places less frequently. To provide the necessary funds, it is proposed to build capacious stands, the admission fees to which will, in the aggregate, enable the promoters to hang up liberal prizes in addition to paying other expenses.

With track racing practically dead, it is argued that the beaches afford the only safe outlet for manufacturers and owners to demon strate the speed of their cars.

SYRACUSE RACES SEPTEMBER 16.

The second annual automobile race meet, under the auspices of the Automobile Club of Syracuse, will be held Saturday, September 16, in connection with the New York State Fair, of which it is scheduled to be one of the chief features. There are to be eight events, principal among which will be the five-mile open free-for-all. All the races will be run under the rules of the American Automobile Association, and handsome prizes will be awarded to the winning cars. On Friday evening, September 15, an automobile parade is to be held, and it is expected that a large number of cars will participate.

Automobile street-sweeping machines are to be added to New Orleans' municipal outfit for the fight against yellow fever.

BEACH TOURNAMENT ENDS.

Christie Makes a Flying Mile in :38 Flat at Atlantic City.

Special Correspondence.

ATLANTIC CITY, Sept. 9.—Good order, careful management and clean sport characterized the closing day of the beach races here last Tuesday. Two miles of wire was strung along the course and a sufficient number of policemen were on hand to keep the course clear. The course, which is conceded by drivers to be unsurpassed in the north, was slightly heavy at places, but, despite this, a run of 38 seconds for the mile was made by Walter Christie, and the Ford racer covered the same distance in 38 3-5 seconds. In the trials against time the Ford made a number of efforts, but the above on the first attempt was the best. Christie, who made the best time of the day, passed over the course only once under timing conditions, as his car went wrong early in the day. Campbell, in the Darracq, could not get below 40 2-5 seconds, although he tried repeatedly.

The most exciting racing of the day was in the two events between the Ford and Darracq cars, the first being won by the Darracq in 43 seconds, while the Ford was only one-fifth of a second later. In the other match race the times were Ford, :42; Darracq, :42 1-5.

The timers were S. M. Butler, Richard Mann and A. E. Maltby, while the starter was F. J. Wagner.

Summaries of the other events follow:

One mile for touring cars carrying three passengers, moving start.—Charles Myers. Upton, 1st, time 1:48 3-5; John Donnelly, National, 2nd, 1:50 4-5.

One mile for American made cars under 30 horsepower.—C. Bacharach, Packard, 1st, time, 1:21 1-5; James Duffy, Pope-Toledo, 2nd, 1:31 3-5; G. H. Jones, Jones-Corbin, 3rd.

One mile for touring cars costing $2,500 or less.—C. J. Swain, Winton, 1st, time, 1:19 2-5; J. Bacharach, Packard, 2nd, 1:23; J. Wilkins, Jr., Winton, 3rd.

One mile for touring cars standing start.—C. J. Swain, Winton, 1st, time, 1:46 3-5; J. Wilkins, Jr., Winton 2nd, 1: 47 2-5; G. H. Jones, Jones-Corbin, 3rd.

One mile for stripped cars weighing 1,432 to 2,204 pounds.—Wilkie, Buick, 1st, time, 1:11 4-5; C. J. Swain, Winton, 2nd, 1:34; Buick Company's Buick, 3rd.

WANT UNIFORM RULES.

Meeting of North Shore Village Presidents to Adopt One General Law.

Special Correspondence.

CHICAGO, Sept. 9.—It is probable that the squabble between the automobilists of Chicago and the north shore authorities will soon be settled to the satisfaction of all concerned.

For some months it has been seen that if something were not done to secure uniform speed regulations among the various villages and suburbs on the north side, the warfare would be continued indefinitely. A meeting was held last Tuesday between the directors of the Chicago Automobile Club and the village board of Glencoe—the village which has become famous in motordom on account of its "bumps." A plan was there formulated which should solve the problem. It was decided to have the presidents of the town and village boards take concerted action on the matter. A meeting will be called in the near future at which an effort will be made to secure uniform automobile regulations and speed ordinances. The backers of the plan believe that they can reach a rational solution of the speed question. The framers of the new law will consult with the officials of the Chicago Automobile Club in regard to all important matters, so that all parties may be satisfied.

An interesting phase of the warfare between motorists and the Evanston board of trustees is seen in the case of Policeman Arthur Johnston, who shot the tire of a machine run by Walter Cartwright recently, while he was touring through the village with a party of friends. Johnston has been held to the Criminal Court by Justice Cochrane, under the charge of assault, with a deadly weapon. His bond was placed at $500. Members of Cartwright's party testified that Johnston fired one shot to stop the machine and two more as it was slowing down. Justice Cochrane said:

"The method used by Johnston is dangerous. If it were pursued one cannot tell what might follow. Some of the bullets might strike in a more dangerous place, and it can easily be seen how persons could be seriously injured or possibly killed."

It is probable that chauffeurs will become prominent around the city hall in the near future if city officials follow the example of City Electrician Carroll. He has requested the civil service commission to furnish him with a chauffeur to operate his machine, claiming that horses are too slow for him, and he is unable to cover the distance required of him unless he rides in an automobile. The other city officials are watching the result of his request with considerable interest. If it is granted, it is probable that the commission will be swamped with similar requests.

WORCESTER GYMKHANA PROSPECTS.

Special Correspondence.

WORCESTER, MASS., Sept. 11.—The gymkhana of the Worcester automobile and Grafton country clubs acting jointly, to be held at the grounds of the latter club in North Grafton on September 23, promises to be as big an event of its kind as was the Dead Horse hill climb.

The committee having the affair in charge completed arrangements for it last week, and also made a trip to the club grounds to look them over.

In his Great Arrow touring car, which has a wheel-base of 100 inches, Percival Whittall demonstrated beyond a doubt that the grounds are most suitable, and will meet all requirements.

In all, there will be twenty events on the card for the afternoon's sport, and the only event on the list which will permit of any real danger is that of a relay race for men and women drivers. The track is extremely small.

In the flower fête there are sure to be a large number of unique and tastefully decorated cars.

ORGANIZING A WASHINGTON CLUB.

Special Correspondence.

WASHINGTON, Sept. 10.—A number of prominent automobilists of this city met Thursday evening in the rooms of the board of trade and talked over the advisability of organizing an automobile club. The situation was gone over carefully and every person present was given an opportunity to offer suggestions, many valuable ones thus being obtained. It was pointed out that Washington, with nearly 2,000 automobilists, is behind other cities of much less importance, having no automobile club of any description, and consequently no social diversions for the automobilists. A number of propositions looking to the securing of a country club house were made, and a committee of five, with Leroy Mark as chairman, was appointed to consider each one and make a report at a meeting to be called later in the month.

It is expected that a permanent organization will be perfected some time this month, and it is probable the new club will secure temporary quarters at a well-known road house some miles north of the city.

NEWS NOTES OF THE CLUBS.

ATLANTIC CITY.—The Atlantic City A. C. was organized here recently and conducted the races on the beach. The officers are as follows: President, Walter E. Edge; vice-president, Louis Kuehnle; treasurer, John Donnelly; secretary, Robert M. Johnston. The organization is incorporated under the laws of the State of New Jersey.

PITTSBURG.—The A. C. of Pittsburg has united with the Civic League in the fight to keep the Pittsburg Railway Company from laying tracks on Grant boulevard. At the last meeting of the governors, $100 was voted for this purpose. The club is also agitating the matter of getting all the automobile supply houses to furnish supplies to club members at a reduction.

CINCINNATI.—The A. C. of Cincinnati has decided to hold a hill-climbing contest here some time in October, owing to the success of the one held on Paddock Road last spring. The place has not been definitely decided yet, but it is probable that the same course will be used. The club has no intention of allowing interest to slacken during the winter, and, in addition to the issue of the Year Book, is planning a series of talks on their experiences by members.

NEWPORT, R. I.—The Automobile Club of Newport was incorporated on September 6. The incorporators are William Watts Sherman, Reginald C. Vanderbilt, Royal Phelps Carroll, Lorillard Spencer, Philip F. Conroy, Henry Bull, Jr., E. G. Hayward, F. C. Van Horn and Richard C. Derby.

The association is organized for the purpose of sociability and the planning of pleasure trips and road races. The members of the club, also, are determined to have just laws passed regarding the speeding of automobiles, claiming that the present speed law is unfair.

GRAND RAPIDS, MICH.—The fight between the automobilists and the city authorities has ceased, the bicycle policemen having been called off and the automobile club having made no new move against saloons and bars kept open on Sundays in violation of the law. Automobilists are enjoying immunity from arrest; only four cases are awaiting trial and these have been postponed indefinitely. Four cases started by the automobile club against hotel proprietors for keeping bars open on Sunday are pending, but it is not likely they will be pushed.

WORCESTER, Sept. 11.—The first ladies' night ever held by the Worcester Automobile Club, was Tuesday night, in the club quarters in the Bay State House. Charles J. Glidden was the principal entertainer, giving a lecture on "A Tour of the World in a Motor Car," illustrated by stereopticon views. Work of organizing hill climbs, orphans' day and combating troublesome country constables, are advanced by members as excuses for their seeming negligence in not providing, heretofore, some sort of social entertainment for those of the opposite sex who share their enthusiasm in the sport.

INDUSTRIAL

FREIGHT RATE REDUCTION.

Manufacturers to Combine on One Argument Before Classification Committee.

Arguments of the three national manufacturers' associations for reduction of freight rates on automobiles, are to be combined in one argument and presented by one man at the October meeting of the Official Classification Committee of the railroads, as a result of a discussion of the subject at meetings of the executive committee and subcommittees of the National Association of Automobile Manufacturers, Inc., held Wednesday and Thursday of last week in New York. As the Classification Committee is a very busy organization, it was felt that a combination of all the arguments of the different automobile bodies, backed by the weight of the whole industry, would receive more favorable attention than separate arguments presented by three or four organizations. The freight committee of the N. A. A. M. has been in consultation during the last three months with experts in traffic matters.

Those present at the conference on the subject were, President Clifton, M. J. Budlong, and Traffic Manager Marvin, of the Association of Licensed Automobile Manufacturers; General Manager McMullen, of the American Motor Car Manufacturers' Association, and Messrs. White, Innis and Chapin, of the freight committee, and General Manager Miles, of the National Association of Automobile Manufacturers. After a thorough discussion a line of action was decided upon and approved by the N. A. A. M. and the A. L. A. M., and will probably be approved by the A. M. C. M. A. The argument is to be presented for the N. A. A. M. by President Clifton.

As a matter of formality the National Association granted a sanction to the Licensed Association to hold the automobile show in Madison Square Garden next winter. An application in regular form by the Boston Automobile Dealers' Association for a sanction was also granted.

A suggestion by S. D. Waldon to hold a race of 300 miles between cars of the same weight and cylinder capacity was discussed at length, and although the executive committee is not disposed to regard racing favorably, a committee consisting of Messrs. Waldon, Davis and Clifton was appointed to give full consideration to the proposal.

HUNTING UP CUSTOMERS.

North Dakota Auto Salesman Canvasses His State in a Car.

Special Correspondence.

MINNEAPOLIS, Sept. 11.—Maurice Wolf, in charge of the Fargo, N. D., business of the Pence Automobile Company of Minneapolis, drums up business by going after prospective customers instead of letting them come to him. The North Dakota agency is the largest in the state and special attention is devoted to the sale of Cadillacs. Mr. Wolfe does not have frequent occasion to come to Minneapolis; he is kept too busy, especially at this season of the year.

"Autoing it out to the people, is the best method of doing business" said Mr. Wolfe, during a recent brief visit here. "North Dakota is an excellent state for driving the automobile. The entire state is practically one stretch of prairie land—level as a floor. As a result, road-building has been easy, and the very best results have been attained. Now, with conditions like that, you can see that it pays to go about in your own machine, instead of relying upon railroads. And then, again, there is this advantage. You must remember that everybody in North Dakota is not quite familiar with the automobile. Of course, they have read a great deal, but only occasional machines pass through some of the towns.

"It has sometimes appeared as if a town has temporarily quit business just to come out and look at my car. Now, when a salesman can attract as much notice as that in a town, he ought to be able to do a little business. Because these people turn out en masse to look at an auto, does not mean that they are "gawks." Quite the contrary. They are interested. They do not ask a lot of fool questions about this, that, and the other thing about a machine. Their questions are intelligent, and I must say that very few of them would prove material for "Rube" jokes.

"During my travels throughout the state, I have been nearly to the western boundary, and almost as far as Portal, at the Canadian boundary. I will say this for the state, the automobile interests are not antagonized by the rural residents. Of course, we have no fool drivers up here, and that helps business a little bit. I frequently have occasion to stop at some farm house between towns, and invariably find the people there courteous and hospitable, even to an automobilist.

"I have sold a large number of the small machines during the present season, and while most of my sales have been made in the towns, not a few farmers have picked up what appeared to them to be bargains. The season is now nearing its close, but a good start has been made here, and next year we will be doing something that is very much in line with the proverbial North Dakota bumper crop."

RECENT INCORPORATIONS.

The Lebanon Motor Company, Jersey City; capital, $200,000. Incorporators: Collard Upton, Arthur J. Hoverton and H. R. McLaughlin.

Illinois Automobile & Parts Company, Peoria; capital, $10,000; manufacturing. Incorporators: J. A. Holsman, Robert P. Jack, Herman C. Kleene.

Dudley Auto School & Garage Company, Boston; to maintain a public garage; capital, $10,000. President, not given; treasurer, James Allen; clerk, William C. Pree, both of Boston.

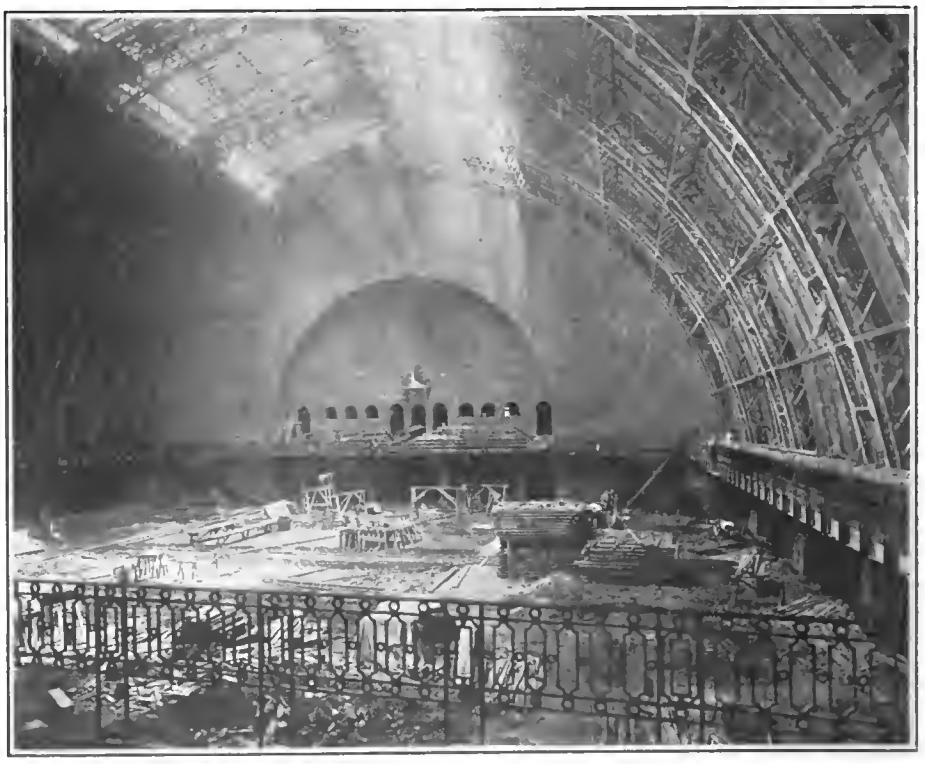
Renault Freres Agency, New York manufacture motors, engines, etc.; cars, wagons, boats, etc.; capital, $15,000. Incorporators: Clarence A. Tilcston, Maurice G. Bernin, Herbert B. Miller, Robert E. Prince, all of New York.

Leyland Automobile Feeding Oil Cup Co., the Bronx, New York; manufacture automobile feeding oil cups, etc.; capital, $10,000. Incorporators: William, Mary J. and John W. Leyland, all of 489 East One Hundred and Forty-fourth street, New York.

Auto Rubber Tire Exchange, New York; sell tires, tubes and shoes for automobiles; capital, $5,000. Incorporators: Jerome C. Lewis and Ralph W. Booth, both of 140 Nassau street, New York; Amy H. Lewis, 102 West Seventy-fifth street, New York.

New York School of Automobile Engineers, New York; capital, $25,000; to maintain a school of instruction in making and operating automobiles. Incorporators, W. Irving Fickling, 309 West 93d St.; Clarence McMillan, 28 West 128th St.; Ralph H. Higgins, 25 West 8th St.; all of New York.

An automobile company has been incorporated at Jefferson City, Mo., to manufacture and sell automobiles in Kansas City. The capital of the concern is $200,000. The holders of the stock are C. H. Alexander, of Kansas City; J. W. O'Neill, Anton Smith and Clement Smith, of Topeka; Dante Barton and F. C. Merry, of Kansas City, and Terry Stafford, of Topeka.



PRESENT CONDITION OF MAIN HALL OF SIXTY-NINTH REGIMENT ARMORY, NEW YORK, WHERE A. C. A. AUTOMOBILE SHOW WILL BE HELD NEXT JANUARY.

The Motor Transfer Company, Richmond, Va.; to deal in automobiles. Incorporators: H. D. Eichelberger, president; W. C. Noland, secretary and treasurer, both of Richmond, Va. Capital stock, maximum, $15,000; minimum, $5,000.

Hicks Gas Motor Company, Waycross, Ga.; capital stock, $18,000. Incorporators: George W. Deen, A. Sessons, C. M. Sweat, F. L. Sweat, O. H. Lowther, J. M. Bell, W. A. Price, W. R. Beach, B. F. Beach.

WINNIPEG ROAD RACE.

First Race for Dunlop Trophy Won by MacLeod in Cadillac Runabout.

Special Correspondence.

WINNIPEG, Sept. 4.—The first race for the Dunlop trophy, presented by the Canadian Dunlop Company to the Winnipeg Automobile Club for annual competition over the Manitoba circuit, was held yesterday, and although there were only four starters, the race was most interesting and attracted many autoists out into the country to see the finish at Deer Lodge, one of Winnipeg's most popular resorts.

The starters were sent away in the following order, at two-minute intervals: J. Moxam, Ford light touring car; W. C. Power, Ford light touring car; J. K. McCulloch, Cadillac Model B; Russell MacLeod, Cadillac runabout.

The course was 26 3-5 miles long and was covered twice. It presented numerous obstacles which tried the reliability of the cars severely, the road surfaces in places being cut up by the traffic into ruts two feet deep, and at once place the road ran through the bush where the scrub hid the cars from sight, the only thing to be seen being the drivers' heads.

Shortly after the start Moxam got into trouble with his clutch, and after several attempts to make a repair abandoned the race. MacLeod, who started last, overhauled the rest of the competitors and completed the first circuit in 1 hour 3 minutes, and without stopping went on for the second round. Power arrived shortly afterward, and lost 9 minutes filling up with water and repairing a leak in the coils. McCulloch came in sixteen minutes after Power with his bonnet and dashboard loose, and, after effecting repairs by means of a rope, started off on a stern chase of the leaders.

When about half way on the second round, MacLeod also got into trouble with his hood, and while making repairs was passed by Power, who was running finely, having regained all the lost time on the first round; shortly afterward, however, the bottom fell out of his battery box, and one of the batteries, falling between the chain and the frame, caused the chain to break and allowed both MacLeod and McCulloch to get ahead of him again.

MacLeod beat McCulloch in the run home and won the race by sixteen minutes in 2:09:30. He has the honor of being the first man to place his name on the shield, and also takes the gold medal presented by Dr. Watt, a member of the club, for the first man home. McCulloch captured the silver medal presented by Mr. MacLeod, the bronze medal presented hy Harold Sprague going to Power.

A. Emmett, secretary of the club, acted as judge and timekeeper. The race is open to all comers, and next year it is hoped that outside cluhs will send representatives.

Some men would rather get chewed up in an automobile accident than to be safe and well in chcurch.—LaCrosse (Wis.) *Chronicle.*

News and Trade Miscellany.

The Toledo Exhibition Company, which has charge of the local county fair, has added a new department to its line of exhibits, and this year handsome prizes will be offered to those who display the finest and most serviceable automobiles.

The old weather-worn speed law signs in Leicester, Mass., which were made of cloth, and had been in place for two years, are to be replaced by new, larger, and more durable signs, more conspicuously displayed.

The automobile garage which has been conducted for the last two years by the Hall-Kirk Company, on Ontario street, Toledo, has been purchased by W. S. Weed, of Chicago, who has already taken possession of it. Mr. Weed will be represented in this city by his son-in-law, J. V. Thomas, also of Chicago.

Mayor Finch, of Toledo, proposes as a remedy for auto speeding in the main streets of the city, that a license ordinance be enacted and owners of cars required to display large numbers on the rear of their cars. Ohio has no registration law and Toledo has been without an auto license for a year.

Tire weights and sizes and tire guarantees were the subjects of discussion at a meeting in Cleveland, at the Hollenden Hotel, last Wednesday, between Howard Raymond and W. E. Miller, representing the tire manufacturers association, and Albert Pope and L. H. Kittridge, representing the automobile manufacturers' association.

To meet the increasing demands of its trade, the Packard Motor Car Company, of Detroit, has recently added a second story to one of its detached buildings, and has erected a new lumber dryhouse and bending department. This latter is located at the extreme northwestern corner of the plant, is 40 by 70 feet and two stories high. The company is installing a large quantity of new machinery and expects to be in a position to turn out all orders without delay.

The Schug Electric Manufacturing Company, of Detroit, has removed from 246 Jefferson avenue to the Boydell Building, Champlain and Beaubien streets, where it will occupy the entire first floor.

The addition to the plant of the Western Motor Company, of Logansport, Ind., has been completed and the machinery installed. The company anticipates putting out a large supply of Rutenber motors during the coming season.

One of the most up-to-date garages in the Northwest is that of the Haynes Automobile Company, located at Minneapolis, Minn. The building is 165 feet long, and of ample width for lining up two rows of automobiles, leaving a driveway through the center. It has a capacity for taking care of from thirty to forty touring cars.

George E. Hawley, formerly secretary of the Automobile Equipment Company, of Detroit, has resigned his position with this company, and has taken an interest in the Gay Manufacturing Company, of Detroit.

To provide more room for the increasing business in the various types of Pope cars, it has been found necessary to give up the storage end of the big Pope garage in New York. Almost the entire main floor will be taken for offices with a salesroom in front and the second floor will be a salesroom for new cars. On the upper two floors will be an excellent repair shop with machinery of the latest designs. Manager Robert E. Fulton says the New York branch of the Pope Manufacturing Company, in addition to retailing, will act as general Eastern distributers for Pope-Waverley, Pope-Tribune, Pope-Hartford and Pope-Toledo cars, supplying agents within about 100 miles of New York.

A feature of the Oakly Fair, to be held in Cincinnati on September 15, will be the automobile races, under the auspices of the Hamilton County Agricultural Society. The race exciting the greatest amount of interest is the Automobile Dealers' handicap, the trophy for which is a handsome silver cup, which must be won for three consecutive years before it becomes the property of any contestant.

The C. Z. Kroh Manufacturing Company of Toledo, has arranged with the National Land & Investment Company to erect a three-story brick building, in which it will carry on the manufacture of automobile and buggy tops.

The Buick Motor Company, which is moving from Jackson to Flint, Mich., is now considering plans for its new building. The contract for the construction will probably be let early in the fall, and it is expected that the entire plant will be housed at Flint at the opening of the new year.

The Reo Motor Car Company has removed its general sales department to Lansing, Mich., where increased facilities enable it to meet the growing demands of the trade. The New York and Philadelphia branches will be retained, and will, as heretofore, control local territory.

According to a cable message, twenty-one of the fifty-three cars that won prizes and certificates for finishing the Pyrenees Tour in Southern France, were fitted with Continental tires. Among these were, Belleville and Richez, who took first prizes respectively in classes 3 and 5, and Ballot, who won second prize in class 4. The regularity cup was also won on Continentals.

The fire commissioners of San Francisco have awarded to the Pioneer Automobile Company (agents for the Winton) the contract for furnishing automobiles for the use of the Fire Department of that city, and an initial order was placed at the last meeting of the commissioners for a 30-horsepower Winton touring car for the personal use of Chief Sullivan. The use of automobiles in fire departments is becoming very general, most of the large cities of the United States now using them for this service.

It is proposed to start an automobile school in Grand Rapids, Mich., patterned aater those conducted by the Y. M. C. A. in several leading cities.

The new Buffalo factory of the E. R. Thomas Motor Company, manufacturers of the "Thomas Flyer," is now up to the second story. The building is unique, being the first in Buffalo constructed entirely of concrete. The company announces that its new model, with many interesting improvements, is almost completed.

The Centaur Motor Company, of Buffalo, has been formed to enlarge its salesroom, due to its constantly increasing business. The company handles a complete line of automohiles, and intends making the Peerless its leading touring car for 1906. This company reports several new designs in steering wheels, in the manufacture of which it is engaged.

Cincinnati automobilists in general are taking the ban on Gabriel horns in good part, although a few who have recently invested in them are inclined to be indig-

nant. The rule is not being strictly enforced, however, and at the worst, it applies only to the city and so cannot interfere with their most important use, namely, the awakening of dozing rustics on top of hay wagons.

The Continental Motor Mfg. Co., formerly the Auto Car Equipment Co., of 240-244 West Lake street, Chicago, will, about December 1, remove to Muskegon, Mich. In the meantime the company will erect a new factory, main building, 200 by 100 feet, two stories in height, and also a foundry building, and will employ about 200 men in operating the plant.

James Joyce has resigned as sales manager of the Electric Vehicle Company, and will assume charge of the American business of A. Bianchi, of Nice, France, who is European agent for Columbia automobiles.

The F. E. Lockwood & Co. automobile agency, of 39 Wall street, Norwalk, Connecticut, have purchased ground adjoining their present garage, and announce that they intend to double their storage capacity. In addition to having the agency for several well-known cars, the concern does a large business in automobile sundrics and repairing.

Two Knox busses with seating capacity for twenty-five passengers are on the way from New York to Havana, Cuba. On account of the activity of the different political parties just now preceding an election on the island, the busses will be much in demand for night political speechmaking trips.

Four automobiles are now in use on Dungeness, the beautiful island off the Georgia coast, which is the Southern home of the Carnegie family. Two of the cars are Pope-Waverleys, and the other two are family 'buses, all the product of the Pope Manufacturing Co., and were substituted for the horse-drawn vehicles formerly used.

The Kiser Testimonial race meet at Dayton, O., netted the sum of $2,622.68, for which amount a check was sent to Earl Kiser by Harry C. Bard, chairman of the finance committee for the meet.

The Wayne Automobile Co. has been incorporated at Chicago, with offices at 108 Dearborn street. The Schench Carriage Co., of St. Joseph, Mo., has secured the agency for the Wayne cars for that city.

Charles Burman, of Cleveland, O., who has been driving Peerless cars on the track as the racing mate of Barney Oldfield, has abandoned racing and will devote his time to the sale of Peerless cars. The accidents to Oldfield, Jay and Kiser, all of whom were friends of Burman, are responsible for the change.

An outfit for the rapid inflation of automobile tires has been placed in the new store of the Neal & Brinker Co., 110 West Forty-second street, New York. This is a free convenience for automobile owners, and may be used at any time between 7:30 A. M. and 6 P. M. The Neal Brinker Co. handles sporting goods, hardware, automobile tool kits and the like.

The stockholders of the Reo Motor Car Co., Lansing, Mich., decided at a recent meeting to increase the output of cars for 1906 to 3,500 cars, at least 500 to be finished and ready for delivery by January 1 next.

The Atlas Automobile Company, of Pittsburg, has disposed of 360 second-hand cars in twenty months. This was the first large second-hand agency in the city, and its success has been very great. The sales ranged from $175 to $700, but a few cars were sold at from $1,400 to $1,700 each. A large proportion of the buyers have come from surrounding towns, but there has been a steady stream of buyers from city automobilists, who thought they could not afford new machines to learn with. Many of the machines were purchased from or sold on commission, for the regular dealers, who took them in exchange for new cars.

G. P. Dorris, for a number of years superintendent and designer of the St. Louis Motor Carriage Co., of St. Louis, is now heading a new company bearing his name, which was organized in St. Louis recently with a capital of $55,000. The new company will make four-cylinder touring cars Plans of the new company have, however, not yet been announced, though a plant will be secured in the near future and cars built for next season.

Athol, Mass., whose police have been exceedingly lenient in the matter of automobilists exceeding the speed laws of that city, announced last week, that because a great majority of the motorists passing through the town impose upon good nature by driving about thirty miles an hour, the fifteen-mile-an-hour law will be enforced to the letter.

Shrewsbury, Mass., selectmen announce a speed limit of fifteen miles an hour. Shrewsbury is east of Worcester, and on the direct New York-Boston route, which is a state road all through the town, which is exceedingly small. The selectmen are first cousins to the Leicester board.

George S. Atwater, formerly with the B. F. Goodrich Company, has been secured by the Atwood Manufacturing Comapny to represent the concern in its sales department. This latter company announces that it will shortly put out its 1906 line of lamps.

The Chicago branch of the Electric Vehicle Company has been moved from 1413 Michigan Avenue to Nos. 1332-1334 on the same avenue. This latter is a new building, and the company has secured spacious quarters.

We are informed by the F. A. La Roche Company, of New York, agents for the Darracq automobiles, that the report of the cracking of a cylinder on the Darracq racer at the Cape May beach tournament and the consequent towing off of the car, was erroneous, as no such mishap occurred.

Henry C. Cryder, formerly of the Consolidated Motor Company, and Theodore A. Havemever have purchased the American selling rights of the Leon Bollee cars from the Leon Bollee Syndicate, Ltd., and will import them under the firm name of Cryder & Co., The firm will also handle other makes, deliverin~ them either in America or at the garage of the Societe Franco-Americane in Paris. The firm is negotiating for garage connections.

A company called the National Sales Corporation has recently been formed in New York for the purpose of handling the sales of automobile specialties. The idea is to take the entire work of selling off the hands of the manufacturer. The president of the new concern is Emil Grossman, secretary and general manager of the American branch of the Continental Caoutchouc Co. E. J. Kuegeman, formerly sales manager of the Auto Brass and Aluminum Co., is general manager. The main office of the corporation is at 256 Broadway, New York, while branches are located at Chicago and Cleveland.

Buchanan, Mich., is to have an automobile factory. The concern will be known as the Lee & Perkins Manufacturing Company, and will manufacture vehicle axles, springs, vehicles and automobiles. The company is capitalized at $200,000 of which $175,000 is already subscribed. The shareholders are, Fred E. Lee, Dowagiac; Judson S. Clay, Dowagiac; Julius O. Becraft, Dowagiac; Henry H. Porter, Buchanan, and C. Porter, Buchanan. The company will own real estate valued at $40,000, and the dam at Buchanan. Articles of incorporation have been filed and the company will immediately begin putting the old Lee & Porter mill in shape for the work.

A very handy box of material to use in case of personal injury is being presented by the Travelers' Insurance Co. to each of its automobile liability policy holders. The box, which is prepared by Johnson & Johnson, of New Brunswick, N. J., contains prepared bandages of different sizes, adhesive plaster, safety pins, antiseptic gauze and a pair of tweezers—all articles of the greatest use in case of accident. Inside the cover of the box are directions for using the contents. The case measures 2 1-2 by 3 by 7 inches, and weighs but a trifle, and is therefore convenient and easy to carry. The Travelers' Insurance Co. very courteously placed one of these cases in the room of every tourist at the Hartford hotels where Glidden tourists remained over night; each box was marked with the name of the automobilist for whom it was intended. It fifteen-mile-an-hour law will be enforced to highly appreciated.

Announcement is made of the formation of the Milwaukee Steel Foundry Company by C. F. Maynard, formerly secretary and treasurer of Crucible Steel Casting Company, J. G. Shaw and W. T. Maynard. The circular sent out by the concern states that all sorts of steel castings will be manufactured, also electrical steel, tool steel, manganese steel and machinery steel. The foundry is equipped with the latest improved machinery and is prepared to turn out work at the shortest notice possible.

George A. Banker, the former cycle champion, has been appointed manager of the Acme Motor Car Company, of New York. This company has secured the metropolitan district agency for the Frayer-Miller car.

One of the 1906 cars of the Logan Construction Co., of Chillicothe, O., was taken out and given a week's hard and continuous driving to test it in every possible way and find any weakness that might exist. This test proved to be very satisfactory, the car standing up well to the hard work it was given. The 1906 Logan car is built along the same general lines as the 1905 Logan, having a double opposed cylinder motor rated at 30 horsepower and sliding gear transmission with two forward speeds and reverse.

Employees of the Diamond Rubber Co., of Akron, O., to the number of 1,500, held their annual outing at Cedar Point, a Lake Erie summer resort near Sandusky, O. Among the proceedings of the day were interesting experience talks by the employees who had looked after the Diamond tire interests in the Gordon Bennett race. The Diamond Rubber band added to the pleasure of the occasion.

F. W. Ofeldt & Sons, heretofore of Brooklyn, N. Y., known in marine circles as yacht and launch builders, and in the automobile trade as manufacturers of steam automobile specialties, have removed to Nyack-on-the-Hudson, where they have purchased the Charles L. Seabury property. This firm is one of the oldest in the motor boat business. In their new location they will have additional facilities for the carrying on of their automobile business, which has developed rapidly.

An agency for the sale of the Scheber carbureter, manufactured by F. H. Wheeler, of Indianapolis, Ind., has been opened at 338 Fenchurch street, London, England. George Neill & Co. are the agents.

INFORMATION FOR BUYERS.

STEEL BELTS.—The loss or breakage of a fan belt on an automobile motor may result disastrously, especially if the motor is an air-cooled one; overheating, with its many evil possibilities, is likely to follow. A belt that is designed to obviate such trouble has been placed on the market by the Philadelphia Ornamental Wire Co., of 628 Filbert street, Philadelphia, Pa., and is called the "Powco" belt. It consists of a long coil of closely wound steel wire, the ends being joined by steel hooks so as to make a continuous belt. The feature of the device is the remarkable strength and stiffness of the wire of which the belt is made. The coil is wound so closely that the convolutions are pressed hard together when the belt is slack, and when stretched over the pulleys the spring effect keeps it always at an even tension and prevents gradual slackening from stretching. The makers state that long and hard tests have shown that the belt will not stretch, and they believe its life to be equal to that of the car.

NEW QUARTERS.—An example of what may be done by sound business methods is furnished by H. F. Borbein & Co., of 2110 North Ninth street, St. Louis, Mo. Six years ago, when this firm commenced the manufacture of automobile running gears and parts, it was located in a small building and could produce but a limited quantity of material. The concern increased its business from year to year until the original quarters were far outgrown, and as a consequence it has fitted up and recently taken possession of a new and spacious factory equipped with modern machinery for turning out work with accuracy and dispatch. This concern manufactures a very extensive line of running gears, automobile parts and bodies—everything, in fact, pertaining to the automobile itself—but does not sell complete machines.

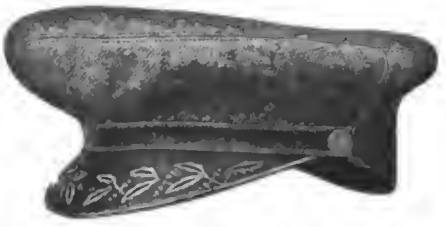
AUTOMOBILE BOILERS.—The Steam Carriage Boiler Co., of Oswego, N. Y., makes a specialty of small steam boilers for automobile use. The company makes boilers only, the manufacture of burners not being entered into at present. Oswego boilers are made with seamless steel shells and copper tubes; the heads are riveted in; all holes are drilled, not punched. Seven different styles are manufactured, there being a total of 160 different sizes. A number of special boilers are made with dry-plates inserted; with flat heads riveted to flanges; with one head riveted in and the other integral with the shell; with enlarged fire-box, and so on.

MILLING MACHINES.—While the lathe has long been called the "king of tools," the modern milling machine certainly runs a very close second in point of utility. Some new styles of this tool are described and illustrated in a circular recently issued by the Garvin Machine Co., Spring and Varick streets, New York. The new machines are fitted with a special feed device run by a separate belt from the countershaft; the gears through which the speed changes are effected run in oil, and are of hardened steel. It is stated that the work of these machines is particularly smooth and accurate, and that the belt will come off before the tool will chatter. The base castings are heavy and substantial, the knees being particularly solid and strong.

LEATHER.—Hand-buffed and machine-buffed Morocco leather, in straight and pebble grain, is offered to the trade in all shades by the Rex-Imperial Leather Co., of Newark, N. J. Although this is a new concern, the individuals comprising it have had years of experience in the manufacture of the grades of leather handled by the present company.

NON-EXPLOSIVE TANKS.—Tanks for the storage of gasoline above ground will be fitted with a device to make them non-explosive if they are shipped to the International Non-Explosive Tank Co., 140 Nassau street, New York city. This company, which has been giving demonstrations recently in New York, manufactures a patented filling tube for such tanks. The tube is double; that is, one tube of perforated metal telescopes inside of another similar tube, and between them is placed a cylinder of brass wire gauze, with a mesh as fine as 200 to the inch. This device, which is provided with suitable cap, is inserted in the tank, or can be placed in a metal casing soldered or riveted to one side of the tank, with several perforations through the side of the tank to communicate with the tube. As it is impossible for flame to communicate through the gauze and perforated metal tubes, and there are no other openings into the tank, the tank cannot explode by the ignition, from the outside, of any gas which it may contain. Tanks already built into automobiles and launches can be fitted with the device, and the company also sells new tanks made with its device attached.

AUTOMOBILE CAPS.—The automobilist, or the would-be automobilist, can always be distinguished by his cap, which has a distinctive cut that does not allow of its being confused with any other cap. A specialty is



"SHAWMADE" AUTOMOBILE CAP.

made of automobile caps by Ora D. Shaw, of 109 Kingston street, Boston, who makes headgear for automobilists in a large variety of styles and in all suitable materials—leather, cloth, silk, cravenette, and so on. The illustration herewith shows one of the many styles of "Shawmade" caps. This concern has branch stores at 831 Broadway, New York, and at 711 Hartford Building, Chicago.

TIRE HINTS.—Everything that can be done to eliminate the trouble that occurs at times with pneumatic tires is of benefit to the tire user. Therefore tire users should appreciate the "Tire Manual," recently published by the G & J Tire Co., of Indianapolis, Ind. This is a handy little book, giving a lot of information that every user of pneumatics ought to possess; the explanations are made clearer by means of numerous illustrations. The last pages contain descriptions and prices of a number of G & J tire specialties, such as applying and removing tools, repair outfits and materials, and so on.

SPEED RECORDER.—An instrument for both indicating and recording the speed of an automobile or other vehicle has been placed on the market by the Chicago Pneumatic Tool Co., of the Fisher Building, Chicago, and 95 Liberty St., New York. This apparatus is patterned after the railway speed recorder manufactured by this concern; the device is well known to railroad men, being widely used for indicating and recording train speeds. The automobile instrument makes automatic records on a paper tape, in addition to indicating the speed per hour by means of a pointer on a dial. At the same time, the total mileage is registered on an odometer. By examining the tape, the owner can ascertain the distance traveled, the speed at any point and the stops made. Long use in railroad service has eliminated weak points from the apparatus, and but few changes were necessary to adapt it to use on the automobile.

TWENTIFTH CENTURY MUFFLER.—One of the most recent ideas in muffler construction is embodied in the Twentieth Century muffler placed on the market by the Powell Mfg. Co., of Clinton, N. Y. The muffler consists of a series of pressed steel cups fitting into each other and bolted together, perforations being provided for the passage of the gas from one cup to another. The gas openings are so arranged as to keep the gases well toward the outer walls, where they may be the more quickly cooled. These mufflers are made in sizes suitable for cars and for motorcycles, and the manufacturers state that they are exceedingly silent and produce practically no back pressure.

KNOX CARBURETER.—An ingeniously designed carbureter, said to be automatic in operation, has been placed on the market by the Camden Anchor-Rockland Machine Co., of Rockland, Me., under the name of the "Knox carbureter." This apparatus is of the float feed type and is fitted to take both warm and cold air, which is mixed in a special chamber. The air then enters the spray-nozzle chamber through ports that may be so regulated as to give a flow of heavy or light gas, as may be required. Knox carbureters are made for two-cycle and four-cycle motors of all types and are fitted with throttles or not, as the purchaser may order.

LAVA SOAP.—The fact that automobilists not only find difficulty, at times, in keeping their hands from getting soiled, but also find it difficult to remove the smudges, has had the effect of bringing out a number of preparations for removing the signs of struggles with machinery. One of the most recent of these is Lava soap, manufactured by Wm. Waltke & Co., St. Louis, Mo. This soap is put up in cakes of two sizes, and is said to be excellent, not only for automobilists, but for everything from washing dishes upward. One of the advantages claimed for it is that it will not injure the skin in the slightest degree, while it will remove oil and grease with great facility.

ANTI-SKID TREAD.—Slipping on wet pavements or muddy roads, especially when going up hill, is one of the failings of the ordinary smooth tread tire. A special tread intended to prevent slipping and also to protect the tire has been placed on the market by the Leather Tire Goods Co., of Newton Upper Falls, Mass., and is called the Woodworth detachable tread. It consists of a band of chrome-tanned leather which covers all the tire except a small strip near the rim. The tread is made of three thicknesses of leather and is thickly studded with steel knobs which afford the required grip on the road surface. The sides of the tread are of one thickness of leather, and the whole is lined with soft wool felt to prevent chafing of the tire proper. The tread is fitted with side wires. In order to apply it, the tire is deflated, when the tread can be slipped over it. Upon inflating the tire the tread is firmly gripped and held in place.

TRADE LITERATURE.

National Battery Co., Buffalo, N. Y.—Leaflet illustrating the National storage batteries put up for ignition work.

F. A. Goebel, Marietta, O.—Circular illustrating and describing the "Snapit" lock switches for automobiles or motor boats.

O. J. Childs Co., 50 Liberty street, Utica, N. Y.—Circulars illustrating and describing the Childs chemical hand fire extinguisher.

General Automobile Supply Co., 86 Chambers street, New York.—Catalogue of an extensive line of automobile supplies and accessories.

New Process Raw Hide Co., Syracuse, N. Y.—Folder containing some strong statements with regard to rawhide gears and pinions for use in automobile work.

Michigan Automobile Co., Ltd., Kalamazoo, Mich.—Circular illustrating the Michigan light touring car and containing letters from persons who have used Michigan machines.

Robert Instrument Co., 57 Shelby street, Detroit.—Card illustrating the Robert voltammeter, designed especially for testing batteries such as are used for automobile ignition work.

Fannestock Transmitter Co., 132 Havemeyer street, Brooklyn, N. Y.—Card giving the names of manufacturers of batteries who use the Fannestock Transmitter Co.'s wire terminal connector in the regular equipment of their batteries.

Goodyear Tire & Rubber Co., Akron, O.—Booklet shaped like the outline of a tire on universal rim, giving illustrations and descriptions of Goodyear tires and Universal rims, which permit of the ready removal of the tire without the use of a lot of levers and tongs.

Autocoil Co., Jersey City, N. J.—A very handy little pamphlet giving instructions for locating ignition troubles, prepared especially with reference to Autocoils, though, of course, useful no matter what coil is used. Also circular illustrating a number of styles of Autocoils.

Leland & Faulconer Mfg. Co., Detroit.—Interesting and well-illustrated booklet concerning the manufacture of cylinder castings for gasoline engines—a branch of mechanical work that is a specialty of this concern. This little book will be found interesting by those concerned in such matters.

Steel Ball Co., 840 Austin avenue, Chicago.—Catalogue and price list of Hill Precision Oilers. The catalogue illustrates the Hill oiler and describes its operation. The Steel Ball Co. has also issued a number of fac-similies of letters from manufacturers and others who have used and are satisfied with the Hill oilers.

Standard Welding Co., Cleveland, O.—Large hanger containing vulgar fractions and their decimal equivalents from 1-64 inch to 1 inch by sixty-fourths. Incidentally, the margin of the card is used to advertise the fact that this concern welds by its electrical process all kinds of automobile and other parts, many of them being of such a nature and shape that welding by any other process is out of the question.

INDEX TO ADVERTISERS

THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, OCTOBER 5, 1905—CHICAGO No. 14

NEW YORK POLICE TIMING SYSTEM.

UNDER the present administration of the Police Department of the City of New York the subject of traffic regulation has been treated for the first time as a serious problem; and in spite of the rapid growth of the actual volume of traffic, the current even at the most congested points flows more rapidly and evenly, and the streets are safer for pedestrians than ever before.

Down to the present time the important detail of the restraint of speeding motorists has been conducted along rather primitive lines, the main dependence being upon the bicycle patrolmen and the mounted police. Apart from the inherent difficulty of accurate timing from a swiftly moving bicycle or horse, this method is open to a serious disadvantage; it involves a race at high speed in the roadway, dangerous to both parties and to the public as well.

Within the past ten days a trial has been made of a different system, which gives more accurate and reliable timing, and at the same time stops rather than accelerates the speed of the offending car. As applied at present, it certainly works no harm to the motorist, as he should have no ground for complaint as to the fairness of the timing, and, at the worst, the first offense merely brings a warning.

The timing and signaling are done by uniformed officers of the traffic squad, working in booths specially built for the purpose. Three booths are used, at distances of a half to a quarter mile, with two men at each booth. The booths are neatly built structures of the knockdown type, about 4 feet square and 8 feet high, with a door and one small window. They are painted green and their purpose is announced by a white sign, with bold, black letters, attached to the roof: "Police Signal Station." Placed close to the curb, with a uniformed officer standing in the doorway and a second on guard outside, they proclaim their object openly, and in no sense fall under the detested designation of "police trap." Each

KINGSBRIDGE ROAD, NEW YORK CITY, LOOKING NORTH FROM 190th STREET, SHOWING NEW POLICE SIGNAL BOOTH ON WEST SIDE.
Second Station Is Located at Foot of Grade, Near Trolley Car, and Third Is Near Last Turn of Road in View.

booth is provided with a timing watch and a telephone.

The point selected for the first trial is that part of Kingsbridge Road just under the shadow of Fort George, between One Hundred and Ninetieth street and Dyckman street. One box is placed on the west side of the road, about One Hundred and Ninetieth street, another is placed one-half mile north, and a third a quarter mile beyond, at the corner of Dyckman street. As a car going north passes the first booth its number and time of passing are telephoned ahead, and if it proves to be moving too rapidly, as it nears the second booth, it is signaled. In the possible event of a disregard of the signal, there is still the opportunity to warn the third booth, so that an officer may be ready in the road. The same operation is carried out in the case of cars entering the city from the north.

Thus far no arrests have been made, offenders being warned and records made of their numbers; but it is proposed to enforce the full penalty for a second offense. If the system works as well as it promises, similar sets of booths will he installed on Lafayette Boulevard, in the Bronx, and on Staten Island.

IN TOUCH WITH MARKET.

Stock Dealer Has His Car Fitted with Wireless Telegraph.

Special Correspondence.

ASBURY PARK, Oct. 2.—Evidence that the automobile is every day becoming more of a fixture in the lives of its users, is given by Major William A. Wetmore, a resident of Allenhurst, N. J., and a New York stock dealer, who has fitted up his car with a set of wireless telegraph instruments, which keep him in touch with the market when he is miles away from a telegraph office. The wireless mechanism has been in operation for nearly a month, and its success has awakened much interest among other Allenhurst motorists, whose business makes it necessary for them to watch the stock market closely.

Major Wetmore does his business in stocks through brokers, receiving inquiries and returning answers by telegraph. Fearing financial loss might follow the inability of his brokers to communicate with him immediately, should the occasion arise, he could not enjoy his automobile in the day time as much as he wanted, until the wireless idea came to him.

Being an expert telegraph operator, he began experimenting with a transmitter and a receiver for wireless messages, and early perfected them so that messages could be flashed back and forth for a distance of twenty-five miles. The transmitters are crude arrangements of two pieces of wood fastened together in the shape of a cross, over which copper wire is strung, and the receivers are ordinary telephone receivers.

When the instruments worked satisfactorily, Major Wetmore placed one set in the tonneau of his car and the other in the Allenhurst railroad station, and now all messages received by regular wire from New York at the telegraph office in the station, are sent by the operator to Major Wetmore by wireless. The Major now feels at liberty to remain out in the country in his car all day, confidant that a message concerning any change in the market that he should know about, will reach him no matter where he may he, so long as he remains within a radius of twenty-five miles of the railroad station. Both Major Wetmore and the station operator are experimenting, and hope to make the instruments powerful enough to carry fifty miles.

INTERIOR OF POLICE SIGNAL BOOTH SHOWING TELEPHONE, WATCHES AND RECORDS.

The automobile manufacturers comprising the Association of Licensed Automobile Manufacturers have taken steps toward the commencement of a series of experiments with a view to ascertaining definitely what grades of steel and other metals are best suited for various automobile parts. With this end in view, the manufacturers have arranged to have Henry Souther work with the metallurgist of a large steel concern, making chemical and physical tests of different metals until the desired results are arrived at. Not only steels, but also metals for bearings and other important parts will be tested. It is said that the steel makers would not carry out such tests for any one automobile manufacturer, because after the desired results had been obtained the orders from one, or even two or three makers, would not be large enough to make the laboratory work pay. By combining forces, however, the manufacturers belonging to the A. L. A. M. have been enabled to arrange for the testing work. The final decision in the matter was arrived at during a meeting of the A. L. A. M. held in New York on Wednesday, September 27. The work will be entirely independent of the experimental work to be carried on by the mechanical branch of the A. L. A. M.

Here is the latest automobile story: A physician started a model insane asylum and set apart one ward especially for crazy motorists and chauffeurs. Taking a friend through the building, he pointed out with particular pride the automobile ward and called atention to its elegant furnishings and equipment. "But," said the friend, "the place is empty: I don't see any patients." "Oh, they are all under the cots fixing the slats," explained the physician.—*The Sun.*

Cost of Upkeep of a Light Car.

By A. D. RIVER.

THE most uncertain thing which the prospective buyer of an automobile has to reckon is the cost of upkeep. This does in fact vary within limits so wide as almost to defy calculation, depending as it does on the make of the machine, the man who runs it, and the condition of the roads over which the car is run.

Nevertheless, it is possible to give approximate figures for the cost of keeping a good light car, carrying two or four persons at moderate speeds, when intelligently cared for. From a study of several tables of maintenance cost lately contributed to the press by users who have had their machines long enough to be able to estimate repairs for the third or fourth year, as well as for the first, the following tables of average and minimum costs have been made up. The car is assumed in both cases to seat four passengers and to be of moderate horsepower, not over 10, and medium weight, with single or double-cylinder motor, and its purchase cost is taken as $1,000. The "average" cost is assumed for a user whose tastes are not especially mechanical, but who understands how to treat his car with consideration, as well as the value of the stitch in time with the mechanism and tires. The "minimum" cost is that which the mechanical man may hope to reach with a good car which he thoroughly understands. In neither case is it supposed that the purchaser has made bulk or horsepower for the money the sole test of desirability.

It is assumed that the owner can house his own machine, the cost of a stable or portable house for one machine being from $50 to $100, of which an average is taken for interest and depreciation. Hired service for cleaning and adjustment is also omitted, as many users find it unnecessary. For the doctor or business man who cannot give the half-hour or hour a day needed to keep a light car in condition, service may involve anything from washing down by a boy up to the full time of a chauffeur at $60 to $100 a month. This last, however, implies a high-powered touring car, and quite possibly a "stud" of several cars of assorted sizes, for all of which one man can care, besides making most bench repairs. The man with one machine can in a short time teach his gardener to do the regular cleaning, filling of tanks, tightening of chains, and, under direction, some of the mechanical work as well. This, of course, presupposes a full initial familiarity with the work on the owner's part.

With a light or medium weight car of moderate speed, and fairly good luck, the cost of tires need not exceed 1 1-2 cents per mile. This figure has been doubled in the "average" estimate to allow for rough usage and bad luck. The life assumed in the respective tables—33,000 and 50,000 miles—is not more than a well built machine ought to be capable of, if wearing parts are renewed from time to time as required. The figures for such renewals as are given in the table will not pay for breakage due to faulty construction or carelessness, but for any such items the purchaser may directly or indirectly blame himself, and nowadays there is little excuse for them.

TABLE I.

Average Annual Cost of Keeping a Light Road Car.

First cost, $1,000. Mileage per year,	5,000.
Interest, 1 year	$50.
Depreciation, 15%	150.
(Assumes life of 33,000 miles.)	
Tires, at 3 cents per mile	150.
Repairs and renewals	100.
Gasoline	50.
Oil, waste and small supplies	10.
Stable, interest and depreciation	10.
	$520.

TABLE II.

Minimum Cost of Keeping a Light Road Car.

First cost, $1,000. Mileage per year,	5,000.
Interest, 1 year	$50.
Depreciation, 10%	100.
(Assumes life of 50,000 miles.)	
Tires, at 1 1-2 cents per mile	75.
Repairs and renewals	60.
Gasoline	50.
Oil, waste and small supplies	10.
Stable, interest and depreciation	5.
	$350.

What may be called the secondary expense of automobiling, which includes clothing, touring expenses, insurance, tips, and, one might as well add, railroad fares and fines for those who are in too much of a hurry, are not included at all, for the reason that most of them can be kept very small if one wishes to do so, and the rest depend very largely on the individual case.

The reader will, however, observe that the cost tables given have not been credited with two items which in strict justice ought not to be omitted—the railroad fares saved by the use of the automobile, and the expenses of outings of other sorts, place of which is taken by the automobile trips contemplated. No general estimate, of course, can be made of either, but the money saved on these two items might easily be sufficient to cover the secondary expenses just referred to.

This branch of the subject may well be concluded with a table of probable costs of keeping a machine of the "buckboard" type, the cheapest thing, because the simplest, in the way of an automobile now on the market. The table does not pretend to be anything more than an estimate, since these machines are too recent for anything else to be possible; but it is in all probability close to the truth. The life of the machine on fairly good roads, for which alone it is built, is assumed to be 20,000 miles, and its first cost is taken somewhat higher than the selling price, to cover the most necessary extras which must be purchased. The average weekly mileage is taken as 80, which is probably as high as would ordinarily be reached.

TABLE III.

Cost of Keeping Buckboard.

First cost, $500. Mileage per year,	4,000.
Interest, 1 year	$25.
Depreciation, 20%	100.
Tires, at 1 cent per mile	40.
Repairs and renewals	40.
Gasoline	20.
Oil, waste and small supplies	5.
Batteries	5.
Stable, interest and depreciation	5.
	$240.

This figure should not be beyond the attainments of anyone using his machine with reasonable care, and it is certainly within the reach of the average purse.

The owner of a high-power car must expect to include the wages of a competent mechanic in his expense account, or the equivalent of these wages in the garage bill, for such a car may very reasonably require two or three hours a day in cleaning, adjusting and general overhauling, which, done a little at a time, keeps such a machine in uniform good trim. For the cost of keeping a touring car no figures seem to be available, but including depreciation, it may easily be from one to several thousand dollars a year, according to make, power, usage and luck. Here as always the owner will find it well to acquaint himself fully with the mechanism and needs of his car.

The crowning glory of automobile touring lies in the demand it has created in all parts of the world where motor cars are being used for pleasure or business purposes, for good roads. Here in America the good roads movement, within recent years, has become a question of national importance. Governor Dineen, of Illinois, gave a marked illustration of the growing demand for better roads in the West when, in his last message, he made a strong plea for the expenditure of more money and careful thought upon road building. His statement that barely 2 per cent. of the Illinois roads were suitable for traffic at all periods of the year was no exaggeration, and scores of other states could show no higher average. Departments of highways have been established in California, Idaho, Minnesota, Mississippi, Missouri, Oregon, Tennessee, North Carolina, Nebraska and in several of the Eastern States in which the good roads movement has languished. Florida recently appropriated $500,000 for good roads, and it is confidently predicted that within a short time there will not be a state in the Union that will not manifest a just pride in the increasing mileage of its serviceable roads good all the year round.—*Outing.*

A Morning Run from Chicago to Joliet.

By MALCOLM MacLEAN.

CHICAGO, Sept. 30.—When the Chicago automobilist grows tired of the smooth drives on the North Side, with their long lines of beautiful homes and artificial scenery, their intermittent fields and inevitable time-keepers, he turns toward the southwest quarter of the compass, where he finds much to interest him if he is a skillful driver and an admirer of nature. One of the best roads leads to Joliet, over forty odd miles of hill and dale, and is one that requires a steady hand and a clear eye.

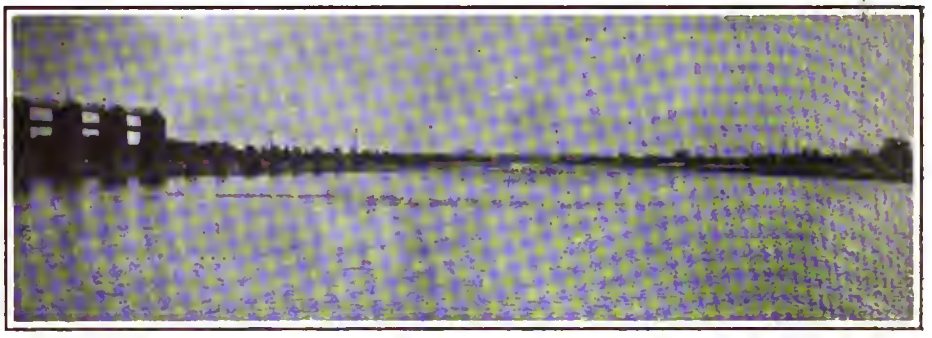
Leaving the Windy City early in the morning—the earlier the better—when the mist is in the air and the cool, bracing wind makes the blood course through the veins like wine, you strike for Archer avenue. There is considerable talk at present in Chicago about the "bumps" at Glencoe, but if you want to hit the real and original kind, just try Archer avenue; you have all the sensations without the interference of a village board.

Follow the street car tracks, and you soon come to the city limits. From there on to Joliet, the route follows the electric line, which is an advantage because any danger of losing your way is eliminated.

As soon as the city limits are passed, the cobble-stone paving ceases and the dirt surface is most excellent. The first glimpse of the wide prairie is also caught and is a treat. Tall grass rises and falls under the breeze like the motion of gentle waves, and here and there rises a solitary bush that looks exceedingly out of place. As the car runs along with an easy motion, you pass a hay rack on its slow way to the city; the driver politely gives you all of the road, the horses shy a little, but the driver soon has them under control again.

It is still early, however, and few wagons are passed. Now and then an electric car tries to whiz by, but you may let it or not, for the road is straight and the temptation strong. Almost before you have left the outskirts of the city, you come to a little hamlet that rejoices in the name of Summit, curiously so named because it is the lowest place in the ridge that divides the lake watershed from the headwaters of the Illinois river; that is, it was the summit over which in ages past the lake water spilled into the river valley. But no hills are visible, except afar off in the distance. The road here takes a quick turn to the left and the village is lost from view.

Far to the right extends a chain of low hills which look for all the world like the foothills of some Western range, with the blue haze hanging over them. The prairie has been relegated to the rear, and now the rich farm lands, high with nodding corn and luxuriant with "garden truck," spread out on both sides. Occasionally you approach a field of shocked corn with its suggestiveness of an Indian village of tepees.



GREAT CHICAGO DRAINAGE CANAL AND CONTROLLING WORKS, NEAR LOCKPORT.

Just around a bend a shack with its inevitable accompanying little sheds and rickety fence, comes into view. A thin line of blue smoke curls lazily from the crazy chimney and an air of rural peace pervades the place. As you come closer you are not surprised to see the family cow reclining beneath a convenient tree and some very small children whittling willow whistles on the doorstep. A comforting odor of hot biscuits and coffee wafts out of the open door, and suddenly you realize that you are hungry. The whole tribe runs out to the gate when you stop to make a timid request. And how you enjoy that simple meal, cooked in the real country style! It takes you back in memory to the time when you were a little boy and sat down to every meal with an appetite that added a wonderful relish to every mouthful.

On again before you become rooted to the spot. Soon you come to a "woods," which seems to have no ending. The road passes through it with enticing little bends and the road invites you on. A small herd of farm horses stands in a clearing, watching you pass with large, startled eyes and ears pricked forward in curiosity. But all things pleasant have their end, and ere long you are in the open again. Meantime, the road has changed from dirt to a smooth surface of crushed stone, over which the car rolls with that hollow, reverberating grinding of the tires so exhilarating to the motorist.

Another village springs into sight, rearing its spires over the little rise in the distance. A large aluminum works on your right brings the recollection that over this spot still hangs the mystery of the murder of Chauffeur Bate last fall, and that the police are still seeking the "Mr. Dove" who committed the dastardly crime. You breathe more freely when you leave the spot behind, and swing into the little town of Lemont.

Probably no town in this section of the United States resembles the old-fashioned New England village of yore as does Lemont, with its hilly, twisting streets, its weather-beaten, paint-divorced stores, and its picturesque. gabled houses. The typical gathering of inhabitants and rural population is lolling around the railroad station waiting for the mail train to pull in. The crowd watches you with an interest which is most embarrassing, especially as the engine, with customary inopportune contrariness, is working rather badly at this particular time and place. Luckily it is but the matter of a few moments to get under way again, and you shoot out of town, glad to escape the good-natured suggestions of the idle onlookers.

Now the road skirts some old stone quarries, out of which blocks of yellow rock were wont to be taken. Further on you catch a glimpse of men loading the blocks of stone from a newer quarry into a freight car. On the right is a corn field of magnificent proportions over which two wonderfully created scarecrows are keeping vigilant watch. But the crows evidently had

FARMHOUSE BETWEEN SUMMIT AND LEMONT, WHERE HOT BISCUITS TASTED GOOD.

conquered their fear of the uncanny dummies, for a great black flock of the birds flies clumsily out of the field with many raucous caws as they hear the car approaching.

Afar to the right lie the huge, continuous embankments of earth and rock thrown up by the Titantic steam excavators and traveling cranes that built the new Chicago drainage canal, whose direction for a score of miles is marked by the parallel ranges of diminutive artificial mountains. From Lemont to Joliet these earthworks extend in plain sight from the road.

Lockport is reached next, and you go out of your way a little to see the controlling works which regulate the height and flow of water in the great canal. Crossing a small, wooden bridge that spans the Illinois canal, now in disuse, you arrive in a few minutes at the works. The huge dam and locks are impressive evidences of man's control over certain forces of nature, and you remember how the building of the 300-foot canal to solve Chicago's sewage problem has reversed the current of the Chicago river and once more caused some of the water of Lake Michigan to find its way to the ocean down the Mississippi Valley, as it did in the glacial period.

Leaving Lockport, the road gradually descends until, far ahead, Joliet comes into view. A huge pall of black smoke hangs over the city, giving visible evidence of its industrial activity; the furnaces of the steel works make Joliet the "little Pittsburg" of the West. Before long you pass the state prisons, one for men and the other for women. Both are constructed of the yellow stone from the quarries near by. High walls surround them, making escape impossible.

A few more rods and you are within the city limits, regretting that the day's run is half over, yet glad that you have the return journey ahead of you.

Carnivorous Companions.

It is well known that dogs frequently develop a great liking for automobiling; and an engraving of a big lion enjoying a spin has already been published in THE AUTOMOBILE. The accompanying illustration

TRAINER FLEIS, OF BOSTWICK'S, TAKING HIS PETS FOR A RIDE

goes one better, however, showing a lion and a bear peacefully occupying a car with their trainer, Ray Fleis, of Bostock's animal show at Coney Island. Mr. Fleis created consternation at the Hicks Automobile Co., in Brooklyn, by applying for a car in which to give his bear Teddy and his lion Atlas a spin; but on the assurance of the trainer that no trouble would follow, a Reo was supplied, and the odd outfit photographed before the trip was commenced.

International Touring Congress.

Special Correspondence.

PARIS, Sept. 14.—During the Automobile Salon to be held in the Grand Palais, Paris, next December, an international touring congress will be held. This congress will deal with all questions affecting automobile tourists, such as condition of roads, rules of the road, transport by railroad, custom duties, speed regulations and all kindred matters affecting tourists.

The honorary presidency of the congress has been accepted by the Minister of Commerce.

Apart from the mere stand exhibitions, there are more "extras" promised for the 1905 Salon than ever before. Numerous lectures, especially on the commercial value of automobiles, will be given during the three weeks of the show; an art exhibition has been promised, and the town vehicles or runabouts competition, which is intended to show the value of town automobiles for winter work, is being worked up with much energy.

Entries for the Salon close in about a month, but already little space is left, notwithstanding that the organizing committee has a larger exposing era than ever before. Already a record exhibition is assured.

OLD ILLINOIS CANAL, NEAR LOCKPORT, ILL. NOW DISUSED

WANT MANY BIG CONTESTS.

Representatives of the German and Bavarian automobile clubs met in Vienna on September 18 to confer with the leading sportsmen of Austria with a view to holding the contest for the Herkomer cup, the Semmering hill race, the Vienna meet and the international contest next year on the Taunus course in Germany, over which the Gordon Bennett of 1904 was run. It is proposed to hold them consecutively, the Herkomer contest being run first, from Munich to Vienna, Berlin and Homburg, where the Grand Prize race would conclude the series of international competitions for touring and racing cars.

The automobile is a factor of no small importance in the freight departments of railroads, as is shown by the fact that some roads have made special arrangements for the transportation of this class of goods. The Erie Railroad Company, for instance, has provided two hundred 36-foot box cars, with steel underframes, which are designed especially for carrying automobiles. The side doors are twelve feet wide, in order to allow automobiles of any size to be easily loaded and unloaded, and the cars are weatherproof. All these cars are in service; the officials of the road state that during the six months they have been in use they have given entire satisfaction, the shippers of automobiles stating that they are the best cars they have used for the purpose. The New York, New Haven & Hartford Railroad Company also makes special provision for the transportation of large vehicles, having a number of box cars with wide end doors. These cars are used for vehicles of all kinds, as well as for automobiles.

If other stock brokers and speculators follow the example of Major Wetmore, of Allenhurst, N. J., and fit their automobiles with wireless telegraph instruments, chauffeurs will soon have to possess the added accomplishment of being able to manipulate the telegrapher's key.

"Only those who motor," said Harry Grant in an interview, "can realize what a healthy recreation it is. For instance, you would hardly imagine what a splendid appetite it gives you. The keen motorist who cannot eat is not to be discovered. Also some people seem to think it is all a case of sitting down and that there is no proper exercise in it. If they tried it they would soon be undeceived. Although it is a pleasure, there is a lot of hard work to be done in driving a motor car, and a man's muscles are tested as probably they were never tested before."—Chicago *Chronicle.*

Maintenance of Country Roads.

(Continued from page 319, issue of September 21.)

Repair of Clay Roads.

ALL repair of clay roads should be made early in the season in order that during the summer and fall the alternate rainfall and sunshine, together with the travel, shall compact and firm the surface. The alternate kneading of the moist clay by hoofs and wheels, and baking of the kneaded clay by the sun, firms and cements the surface in such a manner as to form a cover that sheds rain and supports travel much more effectively than clay in its natural condition. If wide tires are used so that deep cutting is prevented, the process of compacting the surface is much more effectively accomplished.

Every farmer conversant with the tillage of clay soils soon recognizes the process of firming a clay soil by alternate tillage, when wet, and exposure to the sun. Clay soils plowed or cultivated when wet, especially late in the season when the sun has acquired a considerable baking power, become obdurate, cloddy and difficult of treatment to such an extent as to largely lose their fertility. In many instances clay fields by one year's mistreatment in this respect assume an obdurate condition that can only be remedied by years of proper tillage. I have in mind one fairly fertile field, by wet tillage during one season, that was put in such condition that the effect of the bad treatment was noticeable for twenty-five years. The kneading process when wet, alternating with exposure to hot sun, packs and kneads the material of a clay field until the air is prevented full access and the field becomes unproductive. The same process on the surface of a clay road tends to make its surface impervious to moisture and advances it one step in the progress to the typical road whose surface is a perfect roof, that prevents the passage of rain downward to the foundation to destroy its burden-bearing capacity.

Vegetable Matter Objectionable.

When vegetable matter is placed upon the surface of a road in the process of repair, so that it is incorporated therein by travel, the vegetable matter interfering with the kneading process of wheels prevents the clay particles from being forced into close contact and also by decay during the whole season produces an unstable condition the opposite of that which is secured in the absence of this matter foreign to the clay.

A short time ago, in conversation with an ardent good roads advocate, he insisted that in one case under his observation great benefit had been derived by the treatment of a road by a deposit of sod on its surface. It came out, however, later in the conversation, that when the road was treated with the surfacing of sod, it had been thoroughly rolled with a heavy roller. The real cause of the improvement was thus brought out. There is not the remotest doubt but that if the rolling had been done, and addition of sod omitted, the improvement would have been much more marked. The evident benefit came from the rolling and the permanent effect would have been greater if the sod had been omitted.

The decay of the sod but loosens the surface and prevents the full effect of the compacting process of rolling, as well as the same compaction, resulting from alternate kneading of travel and baking by the sun. Let any one take two balls of clay, one in which there is mixed grass and roots, and the other pure clay; thoroughly moisten and knead each one and expose them to the hot sun for a few days, and it is very easy to determine which becomes the most compact and resistant.

Time for Repairs.

The importance of repairing roads early in the season arises from the same conditions and processes as are referred to in the foregoing discussion. In spite of all the instruction and experience of the past, a great proportion of the work of repairing of country roads is performed after the season of alternate rain and hot sun has passed. The dry season of the late summer and fall does not provide the frequent rains necessary to the effective kneading process, and the fall rains come after the sun has lost its power. The result of early work is that the greatest benefit to clay roads provided by nature is made use of, that is the climatic conditions in Ohio in June and July. The clay used in the repair of roads in August and September is, during the dry season, pulverized into powder that later in the season acts as a sponge to absorb moisture and transmit to the rainy season a porous surface that is just the opposite of the surface resultant from early repair, followed by the natural conditions in midsummer that leave the road surface the best, short of artificial covering, for acting as a roof to the road and keeping the foundation dry.

The Split Log Method.

In considering the repair of clay roads I desire to refer to one method that on the one hand is lauded as the universal cure-all for roads; that at slight expense is to give us highways that are in the highest sense good roads, and is to solve the country road problem for a song. On the other hand, this method is held up to ridicule and considered by some road authorities as unworthy of consideration. I refer to the split-log method, called by some the clay and comb method. I do not think the method will fulfill all the predictions made for it by some of its advocates, but I believe it is worthy of consideration and will do much in the way of improving purely rural roads. The much-discussed machine may be described as follows: A log nine or ten feet long is split in halves. The halves, with the flat face front and edge down, are fastened firmly together by cross bars so as to be two and one-half feet apart. A chain hitch is so secured as to drag the affair over the road at an angle of forty-five degrees, so that the front corner of the drag is toward the side of the road and the rear corner toward the center. By weighting the machine and dragging it over the road, when the road is in a moist condition, using two or three horses, the edges of the split log acting as side-wipe scrapers, cuts off the tops of ridges formed by wheels, and any bumps or clods, and forces them sidewise and forward into depressions. This not only fills up the holes and hollows in which water will remain after a rain, softening the surface, but also moves the material toward the center of the road.

This process accomplishes two results. First, producing and increasing crown of the road, and, second, filling up depressions that hold water and prevent the rapid drying of the surface. Although the process is slow, the result tends to proper crown and smooth, dry surface, and also to the destruction of vegetable growth. Another action takes place. The movement of the drag over the wet surface of the road has a puddling and compacting effect that adds materially to the improvement of the surface as to shedding rain. These results may all be accomplished by the use of the modern road machine in forming, and the roller in compacting the surface. From the foregoing it will be seen that the split-log drag acts along the same lines and to the same end as the road machine and roller.

Very Modest First Cost.

The greatest argument for its use is its very modest first cost. There is no question that if persistently and judiciously used that it may become an effective instrument in the improvement of the condition of country roads that are subject only to light travel. As to its being a substitute for the more expensive process of improving the condition of roads subject to heavy travel is not to be considered; neither, on the other hand, should it be held up to ridicule. Its action is along the lines of, and in line with, methods that must be followed in all good road improvement, that is, securing proper crown, compact surface and prompt drainage.

In the maintenance of the clay road surface, the most effective results are secured by doing the work early in the season, by the use of the modern road machine in giving proper crown and smooth surface, and where any amount of material is added, the use of a roller to firm and compact it into a solid and resistant condition.

The method so widely prevalent of working out taxes when there is nothing else to do, making the annual road work an occasion for a sort of picnic or holiday, and the tendency to feel disposed to vote for the fellow for supervisor who allows an easy

JOHN D. SPRECKELS AT WHEEL OF HIS CAR, LEAVING 'FRISCO FOR 600-MILE RUN.

time and ineffective work, rather than for the man who in an honest and businesslike way endeavors to secure the best roads possible from the means at command, cannot but continue conditions that now so widely exist and are so universally deplored. The proceeding is but a minor form of graft, and although insignificant in detail, is very considerable in the aggregate.

Ditches and Drains.

Ditches and drains on all kinds of roads need constant attention in order that they may be effective in carrying off the water. Ditches, when neglected, soon fill up with silt and weeds, and, unless prompt attention is given, fail to carry away the moisture which is retained to soak and destroy the foundation and surface.

From the fact that there are thousands of miles of clay roads within the State of Ohio that show no attempt at drainage, the first and foremost condition necessary to good roads of any kind, special pains should be taken in their repair to provide drainage; that must be the first step toward securing roads that can be traveled with comfort at any time, and are at all passable during the muddy season.

The method of constant attention, by which obstructions and defects are immediately removed, is a much better plan than to allow neglect to such an extent as to require heavy and expensive repair. On every kind of road the lack of prompt attention to drainage is the cause of the greatest damage, and eventually leads to a much larger measure of expense than will result from following the principles embodied in the old expression, "A stitch in time saves nine."

Lack of Public Spirit.

The lack of public spirit in many of the people who reside along our public highways is a very lamentable condition. Instead of taking pride in the appearance of the highway through the farm, many owners make it the dumping ground for waste materials and clog the ditches with trash, stones and brush cast over the enclosing fences as the easiest way to dispose of the waste.

The lack of interest of teamsters, who should have the greatest personal interest in the condition of the public highway, evidenced hy their destruction of the good condition of the roads they travel, is a most lamentable fact. Many times this assumes a more aggravated phase than mere neglect, when teamsters, by persistent and improper driving, apparently indicate that they have no thought of the importance of care on their part, and by their methods lead one to judge that they intentionally counteract and destroy the efforts of road authorities in keeping the highways in good condition.

(To be concluded.)

John Spreckels an Enthusiast.

One of the most prominent and enthusiastic automobilists on the Pacific Coast is John D. Spreckels, a heavy stockholder in the Spreckels Sugar Company and the Oceanic Steamship Company, and vice-president of the Automobile Club of California.

The accompanying engraving shows Mr. Spreckels at the wheel of his car just as he was starting on a 600-mile trip from San Francisco to San Diego. He was accompanied by his daughter, Miss Grace Spreckels, and by Mr. and Mrs. Wakefield Baker, of San Francisco. No chauffeur was taken along, Mr. Spreckels depending wholly upon himself for any services that might have to be rendered the car. He always tours in this way, as he understands his car thoroughly. Miss Spreckels is also an adept in handling the machine and is fully competent to make such a trip on her own resources. The long journey was accomplished without mishap, and evidently none was anticipated, as no extra parts were carried except an inner tube, not even an outer casing being taken along as a matter of precaution.

When the new California numbering law went into effect, Mr. Spreckels succeeded in securing the numbers 1, 2, 3 and 4 for the cars belonging to himself and family, and the car shown herewith bears No. 1, the No. 275 on the condensers being his Golden Gate Park number. Mr. Spreckels also secured operators' badges Nos. 1, 2, 3 and 4 to accompany the car numbers. Miss Spreckels owns and operates a runabout, while her brothers, John D. Spreckels, Jr., and Claus Spreckels, Jr., both drive Whites.

Historical interest will always be associated with the famous battlefield of Gettysburg, and it therefore continues to attract automobile touring parties, one of which, from the Pope-Tribune factory at Hagerstown, Md., is shown in this striking photograph of the "Devil's Den," where a few sharpshooters held back a regiment of Northern troops in that important conflict.

Drawing for Places in Vanderbilt Race.

QUIETLY and without excitement the drawing for places at the start of the Vanderbilt Cup race was held at the quarters of the Automobile Club of America on Fifth avenue, New York, on Monday evening, October 2. As a result, the first car to start on Saturday morning, October 14, will be a German machine—Robert Graves' 120-horsepower Mercedes, with Jenatzy, "the terrible," at the wheel. Jenatzy himself was not present—in fact, very few of the drivers were there, the drawing for each of the teams being done by proxy.

The commission had decided on a method of starting the cars that differs considerably from the methods adopted for the first Vanderbilt Cup race and for the recent American elimination trial. Instead of allowing each driver to draw for himself, a representative was chosen for each country. The four representatives—Robert Graves for Germany, Baron de Turckheim for France, A. L. Riker for America, and E. R. Hollander for Italy—drew first to determine the order of the final drawing. When the final slips were chosen it was found that No. 1 was Germany, No. 2 France, No. 3 America and No. 4 Italy.

This meant that the first four cars to start would be respectively a German car, a French car, an American car and an Italian car, it being left with the members of each team to decide which particular car should be among the first four. The next four cars start in the same order, and so on down the list, the members of the teams deciding the relative positions of their own cars. One excellent result of this arrangement is that no two cars from one country will start in succession.

After a car from a given country has started, three cars from other countries will start before another car from the same country as the first is sent away. For instance, the first car to start will be a German machine; France, America and Italy follow the first before another German machine starts. The cars are as widely separated as is possible with the number entered.

The following table gives the result of the drawing in detail, and by reading down the nationality column the arrangement of the cars will be readily grasped:

ORDER OF START IN VANDERBILT RACE.

No.	Country.	Car.	Driver.	Entered by
1.	Germany	Mercedes	Jenatzy	Robert Graves
2.	France	De Dietrich	Duray	M. De Dietrich
3.	America	Pope-Toledo	Dingley	A. L. Pope
4.	Italy	Fiat	Lancia	Hollander & Tangemann
5.	Germany	Mercedes	Warden	John B. Warden
6.	France	Darracq	Wagner	Darracq & Co.
7.	America	Locomobile	Tracy	Dr. H. E. Thomas
8.	Italy	Fiat	Nazarro	Hollander & Tangemann
9.	Germany	Mercedes	Campbell	S. B. Stevens
10.	France	Renault	Szisz	Renault Freres
11.	America	Christie	Christie	James L. Breese
12.	Italy	Fiat	Cedrino	Hollander & Tangemann
13.	Germany	Mercedes	Keene	Foxhall P. Keene
14.	France	Panhard	Heath	Panhard & Levassor
15.	America	Pope-Toledo	Lyttle	A. A. Pope
16.	Italy	Fiat	Chevrolet	Hollander & Tangemann
17.	Germany	Mercedes	Werner	Clarence Gray Dinsmore
18.	France	Darracq	Hemery	Darracq & Co.
19.	America	White	White	R. H. White
20.	Italy	Fiat	Sartori	A. G. Vanderbilt

Two unexpected changes in the foreign teams were made. Baron de Caters, who was to have driven a Mercedes of 120 horsepower, withdrew, and his place was filled by the substitution of S. B. Stevens' 90-horsepower Mercedes, driven by Campbell. The second change was the result of an accident which occurred on Monday morning. Chevrolet collided with a telegraph pole and completely wrecked his big Fiat. The driver escaped serious injury, but the mechanician had two ribs fractured. Major C. J. S. Miller's 90-horsepower Fiat has been put in the place of the larger car, and Chevrolet will drive it.

The peculiar manner of drawing for positions caused the French delegation to inquire as to the rules governing the matter, they having been under the impression that the rules governing the Vanderbilt cup race called for individual drawing as in the first Vanderbilt cup race. They were quickly satisfied, however, that the arrangement was entirely compatible with the rules laid down in the deed of gift of the Vanderbilt Cup.

The meeting of the commission which preceded the drawing was called for 8 o'clock sharp, but did not convene until much later; and though the meeting was short and the drawing itself was over in fifteen minutes from the time it started, the proceedings were so delayed that it was half-past ten before everything was done. Robert Lee Morrell presided over the function.

WRECK OF FIAT 120-H. P. RACER AFTER ACCIDENT TO CHEVROLET ON CUP COURSE IN FRONT OF VANDERBILT ESTATE.

Practising on the Course.

Practice for the Vanderbilt cup race is in full swing, a majority of the drivers and their cars being already on the course, studying the road with minute care, foot by foot, learning the location of every spot that calls for caution when driving at high speed. An exact knowledge of the road enables a driver to make much better speed than if uncertain what is coming next; so great pains are being taken to memorize every part of the course.

Up to Tuesday evening the only member of the Mercedes team on the course was Jenatzy, who has been at Mineola for several days. John Warden, who will drive his own car; Campbell, driver of S. B. Stevens' car; Foxhall Keene, also driving his own machine; and Werner, with the Dinsmore car, had not selected headquarters. Werner and his car had not yet arrived in New York, but were expected daily. All the Mercedes drivers have different ideas, and each will have his own separate headquarters; at the time of going to press the work of selecting quarters was still in progress.

Of the French team, Duray, driver of the de Dietrich, is located at Krug's Hotel, Mineola, and has been studying the course from a touring car; it was expected that his racer would be sent out on Wednesday or Thursday. Wagner and Hemery, the Darracq drivers, arrived in New York on Saturday, with their machines, and will go out to Glendale, L. I., on Wednesday morning. Szisz, the Renault driver (whose name, by the way, is pronounced "cease"), is at Krug's Hotel, Mineola. Heath and his Panhard racer were expected on the *Kaiser Wilhelm*, which docked on Tuesday. Mr. Heath will make racing headquarters at Johren's Hotel, in Mineola.

The American drivers and cars remain at the places occupied while preparing for the elimination trials; Lyttle and Dingley, with the two Pope-Toledo machines at "Pope Circle," Garden City; Tracy and the Locomobile at Lakevillc, and the White steam car at Bull's Head corner, on the northern leg of the course.

The five Fiat drivers, representing Italy, are all quartered at Porrier's Hotel, near Hempstead. Lancia, Nazarro, Cedrino, Chevrolet and Sartori are all busily engaged in making mental maps of the oiled course. Chevrolet, however, fell victim to his desire to make speed in the fog on Monday morning. He was out early practising with his 120-horsepower Fiat, and while driving at high speed skidded on a corner near Lake Surprise until his rear wheels struck a tree. The car swung around and then struck a telegraph pole, when it upset and rolled over several times. Both driver and mechanician were thrown out. A hasty examination showed that the mechanician had sustained three broken ribs; Chevrolet was dazed, but appeared unhurt. The car, however, is a hopeless wreck, the condition to which it was reduced making it seem simply marvelous that both occupants were not instantly killed.

W. K. Vanderbilt, Jr., and Mrs. Vanderbilt, near whose residence the accident occurred, were on the spot a few minutes after the wreck and at once summoned Dr. Linehart from Hempstead. The mechanician was removed to the Nassau County Hospital at Mineola, declaring all the time that he was not much hurt and would be able to take part in the race on October 14. Tracy in the Locomobile was only a short distance behind Chevrolet, and assisted in caring for the injured mechanician. Chevrolet, deprived of his magnificent machine, will still be in the race, driving Major C. J. S. Miller's 90-horsepower Fiat.

The one cloud over the preparations is the unpleasant episode resulting from the cup commission's action in substituting three cars that failed to qualify in the elimination trials for three that finished. Though the approach of the race has to some extent overshadowed other matters, so far as the public is concerned, the manufacturers whose cars were so unceremoniously dismissed and their friends are as indignant as ever at the treatment they received, which they stigmatize as unfair and unsportsmanlike. Too late for publication in THE AUTOMOBILE of last week, the following telegram was received from Elwood Haynes, of Kokomo, Ind., in reply to an inquiry as to his opinion of the matter:

THE AUTOMOBILE:

Injustice too apparent; no explanation or opinion necessary. Made entry in good faith; supposed it was a fair deal and that merit instead of manipulation would count.

ELWOOD HAYNES

No action has been taken in the matter, though it is thought by friends of the manufacturers interested that redress in some form will be sought.

BOSTON AUTO SCHOOL OPENS.

Y. M. C. A. Begins Third Year with More Instructors and Better Equipment.

Special Correspondence.

BOSTON, Oct. 2.—The Boston Y. M. C. A. automobile school, the first of its kind in the world, will begin its third season tonight with an increased force of teachers and increased and improved equipment. This school was started in 1903, and was an immediate success. Last year a large number of owners and prospective owners of cars, as well as men fitting themselves for chauffeurs, attended the school.

This year the school has as an advisory board President Elliott C. Lee, of the American Automobile Association and the Massachusetts Automobile Club; Colonel James T. Souter, ex-president of the Massachusetts A. C.; George H. Lowe, retiring manager of the White New England branch; Dr. Walter G. Chase; E. A. Gilmore, manager of the Thomas B. Jeffery & Co. branch; W. J. Foss, manager of the Pope Manufacturing Company branch; Chester I. Campbell, manager of the Boston show; J. S. Hathaway, the new manager of the White branch, and Galen D. Light, the superintendent. The teaching force will consist of Albert L. Clough, lecturer on gasoline vehicles; Parker H. Kemble, lecturer on steam vehicles; Winthrop C. Hosford, shop instructor; B. W. Shaw, shop instructor, and W. L. Saunders, instructor in assembling and in tire work.

The school provides five courses. In addition to the lecture course, which is divided into gasoline and steam sections, and the regular shop course, where practice is given in taking down, assembling, and the care and repair of machines, there are to be courses in removing, patching and repairing tires, in driving gasoline and steam cars, and a course of written and oral reviews and examinations. For its work this year the school has at its disposal several well-known makes of touring cars and runabouts, so that it will be possible to give the pupils instruction with many of the leading makes of cars. The driving course is to be in charge of an experienced chauffeur. The first lessons are given on unfrequented roads in the suburbs. Succeeding lessons bring the pupils gradually into more crowded thoroughfares, until in the final lesson the route is through the most crowded city streets. It is planned in this course to give sufficient instruction and practice to enable the student to secure a license to operate from the Massachusetts Highway Commission.

AUTO INSURANCE RATE LOWERED.

Special Correspondence.

BOSTON, Oct. 2.—A decision of great importance was reached last week by the New England Insurance Exchange at its first meeting in this city since the summer recess. It was in relation to the writing of insurance on automobiles. Heretofore a floating policy has been in force, binding the stock companies whose special agents were members of the exchange to charge not less than 3 per cent. premium. This rate was found to be prohibitive, inasmuch as marine insurance companies, which are not subject to the jurisdiction of the exchange, took up automobile insurance and wrote it at lower rates, so that they secured practically a monopoly of the business. The members of the exchange discussed the situation and then voted unanimously to declare off all previous rates and thus permit the stock companies to enter the field and write automobile insurance at whatever rate they wish.

Statistics just published by the revenue department of France, which taxes automobiles as luxuries, show that there are at present 17,107 automobiles in use in France. Of this number 12,713 have more than two seats, and 4,394 have either one or two seats. In Paris there are 2,613 automobiles carrying more than two passengers and 533 with one or two seats.

Tourist Trophy Race in Isle of Man.

From Our Own Correspondent.

DOUGLAS, Isle of Man, Sept. 15.—Yesterday's race well demonstrated the uncertainties of motor racing, for both the favorites were out of the running in the first circuit, and the actual winner was quite a "dark horse"—the Arrol-Johnston car, running yesterday in its first race.

The race was an attempt on the part of the Automobile Club of Great Britain to solve the motor road-racing problem; to plan a race in which increase of power and cutting down of weight would be prevented from running to such limits that no possible benefit to the industry could arise therefrom. The first of these evil tendencies was stopped by the limitation of the gasoline supply to one gallon for each twenty-five miles of average road; as a matter of fact the very hilly nature of the course caused the allowance to be increased to 9 gallons 1 quart for the 208 1-2 miles, equivalent to 22 1-2 miles per gallon of fuel. To prevent undue cutting down of weight, the chassis was required to weigh between 1,300 and 1,600 pounds, and to be fitted with a standard four-seated body.

The idea of the race proved very popular with English manufacturers and agents, and fifty-eight entries in all were received. Several cars could not be cut down to weight limit, and several others were too extravagant as regards gasoline consumption, and hence were withdrawn. The leading English makers—Napier, Wolseley, Daimler, Rolls-Royce, Siddeley—were represented, and the American entries consisted of two 15-horsepower White steam cars entered by F. Coleman, and a standard 9-horsepower Cadillac run by F. S. Bennett, this last the lowest powered car in the contest.

The race was run off on the sole English motor track—the eliminating trials circuit in the Isle of Man. For three weeks before the contest most of the cars were being tested, and the usual exciting incidents occurred. The driver of one of the 16-horsepower Swift cars was unable to negotiate a double curve near Castletown and the car crashed into a stone wall, being badly broken up. By working day and night the car was running again in two days, but through some misunderstanding did not take part in the race. A Gladiator car on the same day went into some cows and the foot brake gave way under the sudden strain, so putting the car out of the race, as a replacement could not be made in time.

The competing cars were handed over to the officials on Monday, and for three days the weighing and filling with the stipulated quantity of gasoline took place. Finally, yesterday morning, the cars were drawn out—ignominiously by a horse—and lined up on a steep hill which joined the course at the Quarter Bridge—the starting point of previous races. At 9 A. M. the word to go was given, and S. S. Rolls released the side brakes of his 20-horsepower Rolls-Royce. The car glided off down the hill and at the bottom the engine was started and the car continued on its journey. The other forty-one cars were sent of at one-minute intervals and the crowd waited for the first cars to reappear. After a few minutes word came through that barely a mile on his way Rolls had found his gears grinding up, and on examination of the gear box several loose nuts were discovered inside, which had caused all the damage. As the car had been running all right when handed over on Monday, and the nuts could not have got inside by their own agency, ugly rumors of foul play began to circulate. This unfortunate incident has greatly detracted from the success of the race, but the suspicions seem to be strengthened by the fact that Arnott—whose Minerva car was the favorite after the Rolls-Royce—found immediately on starting that two of his sparking plugs had been smashed and later on that the spindle of an air valve of his carbureter was bent right over, causing the engine to heat up with the strong mixture. An interesting fact concerning both these cars is that, as usual, the third speed was a direct drive, but an extra fourth speed, geared very high, was provided. This was used when descending long slopes, and either car could touch nearly eighty miles an hour when rushing down the five-mile descent of Snaefell mountain.

News next came through that one of the Argyll cars—a well-known Scotch production—had run into a hotel at Castletown, but after some repairs it continued in the race. Further around the course the Wolseley car went so fast at a corner that it dashed through a hedge into a turnip field, and a Thornycroft car, which was just immediately behind, collided slightly with the Wolseley. The Thornycroft continued its way, although its off rear wheel was twisting about in a most alarming way. Soon afterward the Cadillac was placed *hors du combat* through a curious circumstance. Mr. Bennett, the driver, had a slight accident to his foot some time before the race, and had not driven his car around the course himself previously. Coming down the mountain road, he mistook a sharp corner through not knowing the course very well, and the Cadillac swerved so violently that both of the near side wheels were carried right away. Driver and mechanic were both thrown out, but fortunately were in no way hurt.

Back at the starting post, a long wait elapsed before the cars came around again, but at 10:47 A. M. both Orleans cars passed, followed quickly by the others, thirty-nine finishing the round. Fastest time was made by the Arrol-Johnston, closely rivaled by the second Rolls-Royce car. One of the White steamers and the Siddeley were delayed by tire troubles, but these were the only cases, for punctures were remarkable by their absence during the race. On the second round the elimination continued; both Darracqs met with disaster, one breaking a wheel at Ramsey and the second doing likewise by running into a well at Hilberry. The Vauxhall three-cylinder car—remarkable for having six speeds—ran into a tree, but still no competitors were hurt. The broken wheel trouble seemed to become infectious, for a Speedwell and one of the Whites now added to the number of those so finished off. The Arrol-Johnston again made fastest time, followed closely by the Rolls-Royce and the French Vinot car, the second Arrol-Johnston being fourth. This order was maintained till the finish, for the leading cars proved remarkably regular.

At the third round several cars, even this early, ran out of gasoline and were stranded by the roadside till the official car came to their aid at the end of the race. The Thornycroft with its damaged wheel broke its

ARROL-JOHNSTON 18-H.P. CAR, WINNER TOURIST TROPHY RACE, ON SNAEFELL MOUNTAIN.

ROLLS-ROYCE 20-H.P. CAR, WINNER SECOND PLACE IN TOURIST TROPHY RACE.

rear axle, and the Argyll, which had previously been in trouble, now broke a front wheel.

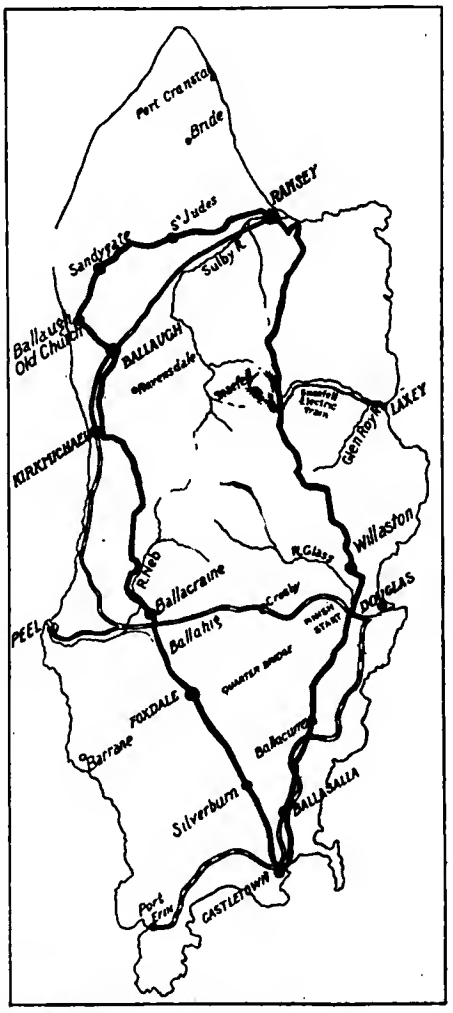
Although the weather was perfect, and the day warm, interest in the proceedings began to wane by the time the cars were finishing. The Rolls-Royce ran up to the grandstand at 3:30 P. M., having taken 6 hours 11 minutes for the 208 1-2 miles. Now the excitement commenced. The Arrol-Johnston had started twenty minutes after the Rolls-Royce, and if it should finish within this time it would be the winner. Eighteen minutes passed, when suddenly a white object flashed into view, and rushing down the hill at quite sixty miles an hour came in, the winner by a minute and a half. The Vinot car was third and the other Arrol-Johnston fourth.

The winning car's speed averages nearly thirty-four miles an hour, which is certainly remarkable, considering the amount of hill climbing and the tortuous nature of the course. Luckily there was no accident to any competitors or spectators, and the rather large number of cars placed out of the running must be ascribed to the very hard driving which was necessary if good times were to be made, since the average power of the cars was only 12-15 horsepower. On draining the gasoline out of the tanks, it was found that the winner had no less than 1 1-2 gallons left, while another car out of the twenty-one that finished officially had over 2 1-2 gallons remaining. On the other hand, eleven cars ran out of fuel, one unfortunate being only three miles from the finish.

The winning car is the production of a Scotch firm and is the first of the type they have built. The car is very low and has a wide tread. Wire-spoked wheels were used on this and several other cars in the race. The 18-horsepower engine is built somewhat on the lines of the Gobron-Brilleé, *i.e.*, it has two cylinders but four pistons, the explosion taking place in each cylinder between a pair of opposing pistons. The engine is set horizontally. and is very flexible in running. A four-speed gearbox and shaft drive are employed.

As regards the race itself, it must be said that it was a success, considering that it was the first of its type and so purely an experimental venture. In all probability the race will be repeated at an early date next year, and perhaps an international challenge race—a Gordon Bennett with limited engine power—may be instituted by the A. C. G. B. I.

It was unfortunate that all three American representatives were placed so soon out of the running—for the remaining White abandoned the race in the second round—but perhaps next time more entries may be received, with consequent greater chances of success.



From Motoring Illustrated.

MAP OF ISLE OF MAN COURSE.

Foreign News Notes.

During James Gordon Bennett's recent visit to Milan to confer with the local automobile club, he is said to have decided to have his cup competed for in a touring event next season instead of a racing contest, as hitherto. This would give the cup a new lease of life and still conform to the desire to do away with the Gordon Bennett event as a contest of speed.

The little English anti-motoring town of Andover has collected $5,000 in one year from the unfortunate motorists who have been mulcted by the officials for excessive speeding or other minor infractions of the law.

Five automobile watercarts are about to be put into service on the streets of Rome by that very progressive municipality, as the first tests were most satisfactory. The carts can travel about seven miles an hour with a full tank, and the water spreads out to a distance of more than thirty feet on either side. The distance can be regulated as desired by the operator.

The Semmering race, on September 17, was not as well contested by racing cars as usual; in fact, only Mr. Dreher sent his 100-horsepower Mercedes of Austrian make, piloted by Braun, to the start. But in contradiction to former years, numerous touring cars competed. Herr Dreher had a walkover in the racing event, where last year Lancia and Duray were prominent amid a crowd of minor celebrities, and Braun lowered his last year's record of 8 min. 11 3-5 sec. to 7 min. 50 4-5 sec. After ascending the hill he dashed back to the start on a motor bicycle to drive Herr Dreher's 80-horsepower touring Mercedes, and won Class 10, making the ascent in 8:57 2-5, the second best time of the day. Both Clarence Gray Dinsmore and Herr Dreher have won the cup two years in succession.

It is rumored that the German Automobile Club has decided to follow the example of its British colleagues and withdraw from the 1906 Gordon Bennett race. Members of the club have expressed their willingness to participate in a Grand Prix promoted by the Automobile Club of France, if every nation is accorded the privilege of entering the same number of cars. It is not believed, however, that the French authorities will agree to this, their desire being to limit the number of cars entered by each country, in proportion to the status of the national industry.

An automobile at Webster City scared a horse to death. Those Webster City fellows should take their horses to some city like Ames, where they would see the machines often enough to get used to them, and thus avoid such accidents as the one noted.—Ames (Iowa) *Times*.

Emergency Repairs on the Road.

By G. A. RAGE.

THE Chauffeur and the Locomotive Engineer were exchanging experiences and telling of the various difficulties they had got into and out of, when it occurred to a listener that the railroad man's stories nearly all related how he got into trouble and a gang of men and a train came and got him out, while the Chauffeur told how *he* was overwhelmed by difficulties and had to dig his way out with whatever assistance was right at hand.

"That's so," said the Chauffeur. "It's a good illustration of one of the advantages of the automobile. The locomotive is such a ponderous affair that it is often impossible for the crew to make even a temporary repair in case of a serious break on the road, while the automobile is so light, comparatively speaking, that in most cases a little brain work will do wonders. Of course, you can't compare the two on any sort of common basis, but the point is an interesting one.

"It was not so very long ago that I was testing out a new car on an unspeakable road, when two deep ruts close together proved too much for the tubular front axle. The first rut bent it, and the second one broke it off short not far from the middle. In summing up the damages we found that though the steering pivots were slightly bent, they were still in working order, so we got to work to make a repair that would take us home. The nearest house, so far as we knew, was twenty-five miles away, so that we were thrown entirely on our own resources.

"The first thing we did was to make a hot fire of wood. In this we heated the two halves of the axle and took the kinks out as well as we could. Then we made four heavy hardwood splints and 'set' the broken axle as a surgeon would set a broken bone. We were lucky enough to have a roll of heavy wire in the tool box, and with this we bound the splints over the broken place, drawing the wire as tight as possible and using plenty of it. The finished job certainly looked anything but strong, but no one wanted to walk twenty-five miles, and we had to get home somehow, so we got into the car and started.

"I don't know how it happened that nothing else gave out, but that horrible piece of repairing took us home safely. To be sure, we crawled; the joint creaked and groaned and sagged; the front wheels assumed the wildest of angles and never pretended to be anywhere near parallel; but, handled with the tenderest care, the thing took us all the way. I think we went to bed when we got there.

"I had another adventure one night that came near ending—or, rather, beginning—more seriously. I was driving in the dark on a road that led through a wood, and my lamps were not burning very well. I was going along at a pretty good pace—probably a little faster than was safe—when I suddenly saw a tree that had fallen across the road, the trunk supported in some way at such a height that there was not quite room enough for the car to pass under it.

"So close was the car to the obstruction that I was doubtful whether a stop could be made in time to avoid a collision, but I threw out the clutch and jammed the brakes on hard. I was so taken by surprise, and was so busy trying to stop the car, that the thought of ducking did not occur to me, so that if the machine had not stopped I would have been caught by the tree and jammed against the back of my seat; just what would have resulted would have depended on the ratio between the resistance of my bones and the momentum of the car. But fortunately the wheels had a good grip on the road, and the brakes held well.

"The front of the machine ran under the tree, and the trunk caught the front of the steering wheel while the car was moving its last six inches. The wheel was forced backward, and the spokes snapped off close to the column, leaving the wheel dangling in my hand. Then the car stopped. It made me think of the trick of cracking an egg with a fifty-ton steam hammer.

"I got out and looked at the tree, and then decided that I had gone far enough. But when thinking of turning around and going home I recollected that there was no means of making the car turn around, for the wheel was still hanging in my hand, and there was not even an inch of spoke left on the column. It was nearly as far from home as when the front axle broke, and I had to figure the thing out by myself.

"The solution of that problem took me several hours, but it was so simple that I can't for the life of me see why I didn't think of it right away. Why, there were a couple of pipe wrenches in the tool box; I jammed them hard on the column, one pointing right and the other left, pulled them in hard so as to give them a good, deep bite, and then wedged them in place with cold chisels. I steered home with that rig, handling the wrenches very carefully. I had to wedge them up a couple of times, as they worked loose, but they did the trick.

"There are lots of things a fellow can do on the road to get out of trouble if he only thinks of the right thing at the right time. I broke a gear of the differential on a car with shaft drive, and got home by taking off the cover of the differential casing and bolting the gear together so that the axle ran solid. The wheels ran together, and one had to slide on the turns, but it slid all right and saved me the trouble of walking.

"I once needed a long bolt, and made one by screwing the ends of two studs into opposite sides of a nut, each stud going half way through. It wasn't very strong, but it answered my purpose all right and saved a long delay.

"Of course, a man may not always happen to have two pipe wrenches on hand if he breaks his steering wheel; he may not have two studs and a nut if he wants a long bolt; and if he breaks his differential it may not be constructed so that he can bolt it up solid. But what I mean to show is that many apparently hopeless smashes can be temporarily repaired by using material that is at hand. The thing is to train yourself to make the utmost of what you have—to make what you have do the work of what you have not and can't get."

Logan Freight Truck.

The truck illustrated herewith is the 1906 Logan machine, built by the Logan Construction Company, of Chillicothe, O. In its general features the truck is similar to the Logan touring cars. It is more heavily built, however, and has larger cylinders than are used on the touring car; the bore is

LOGAN TRUCK FOR 1906, WITH LOAD.

5 1-2 inches and the stroke 6 inches; the motor is rated at 30 horsepower. Transmission is by sliding gears, giving two forward speeds and reverse, with direct drive on the high gear; when the direct drive is engaged there are no gears running in mesh. The clutch is of the contracting band type. The motor, with double opposed cylinders, is placed under the body with cylinders pointing fore and aft; the shaft runs from the motor into the transmission gear case, the shafts of the latter also lying across the frame. Drive is by single chain to the live rear axle. The truck has a carrying space eight feet long back of the driver's seat; the capacity in weight is 3,000 pounds.

An enterprise organized in Argentina has for its object the establishment of a line of automobiles to run across the Andes Mountains between Chile and Argentina on the old international road. It is stated the concessions have been granted by Chile and that the government of Argentina is very favorable to the enterprise, and it is believed that a line of automobiles for both freight and passenger traffic will do much to revive business and competition in silk. The competition be-activity along the old international road.—*New York Commercial.*

Packard 1906 Model Touring Car.

SATISFIED with the performance of the 1905 Packard car, the Packard Motor Car Company, of Detroit, has made few changes in designing the model for 1906; and these changes are without exception matters of detail. In fact, the casual observer would have some difficulty in deciding which was the newer model on looking at a 1905 and a 1906 car.

The 1906 Packard, rated at 24 horsepower, has a four-cylinder, vertical, water-cooled motor which, the manufacturers state, develops thirty-five per cent. more power than the 1905 motor, with an increase in weight of but five per cent. The most noticeable change in the motor is in the valve arrangement. Last year the valves were all on the left side of the motor, operated by a single camshaft. In the 1906 car the exhaust valves are on the left and the intake valves on the right-hand side, and two camshafts are used, all the valves being mechanically operated, as was the case with the Model N. The object of this change was to permit an increase in the sizes of the valves and valve chambers. The crankshaft, of nickel steel, is necessarily somewhat larger than before, and the flywheel is heavier.

A refinement in the arrangement of the ignition apparatus consists in making connection between the high-tension wires and the spark plugs by means of switches, instead of attaching the wires directly to the plugs. A short distance behind each plug an insulated bracket is attached to the top of the cylinder; on this bracket is pivoted a lever switch having two blades with a space between blades. When the switch is depressed to make connection, the two blades fit over a metal projection on the top of the plug, the friction of the blades making good electrical contact and holding the switch firmly in position. The high-tension wires pass through holes in upward extensions of the brackets, and are connected up to the bases of the switches. This arrangement makes the cutting out of one or more cylinders for testing a simple matter.

Ignition current is furnished by a chain-driven Eiseman magneto placed at the front of the motor on the lefthand side and driven from a small countershaft geared to the camshaft. There is a single high-tension coil, witn vibrator, on the dash-board with a switch to connect the magneto, the battery or to open the circuit. A storage battery furnishes current for starting.

The three-speed sliding gear transmission has been strengthened by increasing the width of the gears throughout, and Hess-Bright ball bearings have been applied to the shafts. The transmission and differential are enclosed in a single housing on the rear axle, as in the Model N, and the shaft and bevel gear drive is also retained.

A change has been made in the carbureter by fitting a new form of poppet auxiliary air valve. Otherwise the carbureter is the same float feed, hot water jacketed apparatus as before. The throttle is fitted with an automatic governor operated by the pressure of the circulating water. As the rotary pump is gear-driven from one of the camshafts, its speed always bears a definite relation to that of the crankshaft.

Lubrication is the same as on the Model N, a plunger pump forcing oil to the crankcase and the distribution of oil being effected by splash. The pump has a single plunger and two leads, one for each of the two compartments of the crankcase. Each lead is fed through a sight glass on the dash.

The main frame members have been made quarter of an inch deeper than in the Model N. The various frame members are secured by cold riveting.

The Packard three-spring suspension has been abandoned in favor of the more usual four-spring system; the springs are all semi-elliptic. The rear springs are 56 inches long —nearly seven inches longer than on the Model N—and the front springs are 40 inches long; all are two inches wide.

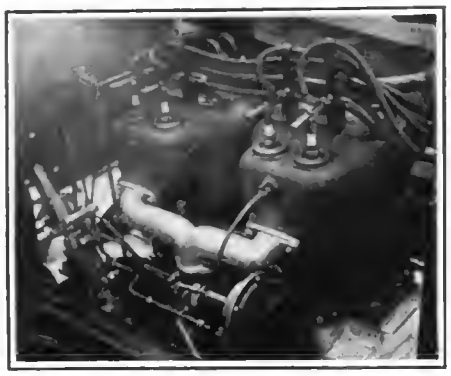
Other mechanical features are unchanged. The dropped front axle of steel tubing, the live rear axle running on ball bearings, the braking system, with internal and external bands working on the same drums, the clutch, controlling system, cooling system and so on are the same as on Model N. A locker, with upholstered lid which can be used as an extra seat for two persons, has been placed in the tonneau, and a spacious main locker under the rear seats affords storage room for touring effects. The finish of the car is the well-known blue, with cream running gear.

FRONT VIEW OF PACKARD 1906 MODEL 24-HORSEPOWER TOURING CAR.

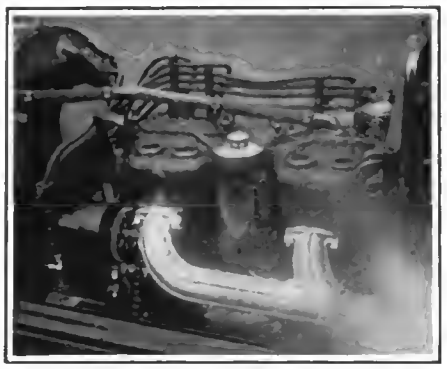
Winton 1906 Model.

The new features incorporated in the 1906 Winton cars are mainly in the design and construction of the body, the lines of which are considerably changed, though the familiar flat-topped bonnet and the dished dash are retained. The side doors have been made wider and are now square at the bottom instead of semicircular, the additional width and the straight sill making entrance and exit much easier. The rear of the body below the level of the tonneau seats is "cut under" instead of projecting to the rear, thus conforming with general practice in body design. The backs of the individual front seats are straighter across the tops than in the 1905 cars, making a more comfortable rest for the back, and the arms are higher and nearly horizontal. All these things tend to increase the comfort of those using the car.

From a mechanical point of view the 1906 Wintons are almost exactly like their predecessors of 1905. One important detail, however, has been changed. The Winton



Inlet Side of Packard Motor, Showing Switches to Plugs, Circulating Pump and Throttling Mechanism.

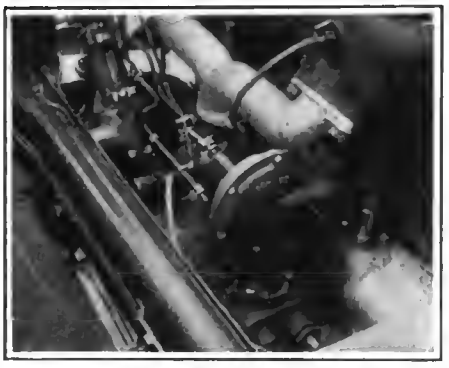


Exhaust Side of Engine, Showing Magneto and Wiring, Fan, Distributor and Lubricating Tank Between Cylinders.

transmission is of the individual clutch type, giving two forward speeds and one reverse; a separate cone clutch is provided for each pair of gears, one member of the clutch being formed in the gear itself. Thus all gears are constantly in mesh, running idly on their shafts when not driving. The high-speed clutch is larger and heavier than either the low-speed or the reverse; but in order to give a more positive drive than was obtainable with a single clutch of the diameter that could be enclosed in the gearcase, an outside cone clutch, of larger diameter than the first, has been added in the 1906 models. These two clutches work toward each other in unison, balancing each other and giving a large frictional area. The accompanying line engraving of the transmission shows clearly the new clutch arrangement. In former models a flat friction plate occupied the casing that now encloses the second clutch.

The cylinders are cast in pairs with integral heads, water jackets and valve chambers. The crankcase is divided vertically, and one side may, if necessary, be removed entirely, giving free access to the cranks and connecting rods. There are large hand holes, however, so that the removal of half the crankcase is necessary only in extreme cases.

The Winton compressed air control system, by which the lift of the inlet valves is regulated, is retained unchanged. A piston air pump, driven by a crank on the forward end of the camshaft, supplies the air for this purpose; a foot button and a lever on the top of the steering wheel are fitted, so that the car may be controlled either by hand or by foot, as may be most convenient at the moment.

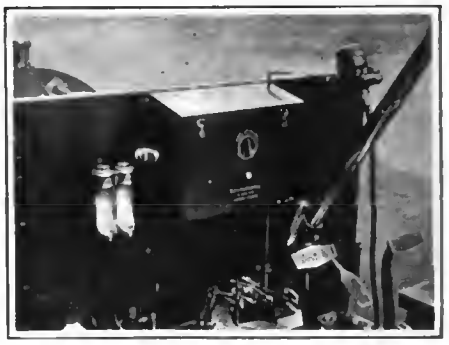


Detail of Inlet Side, Showing Pump Connections, Carbureter, Valve Springs and Steering Post.

Other features retained are the shaft and bevel gear drive, the Winton double spring suspension, the permanent steel dust pan beneath the engine, the air pressure feed to the carbureter. Jump spark ignition is used, and either battery or magneto will be supplied, according to the wishes of purchasers.

The finish will be in Brewster green, maroon, royal blue and red; the silver finish that was such a prominent Winton feature in the 1905 cars will be furnished only on special order.

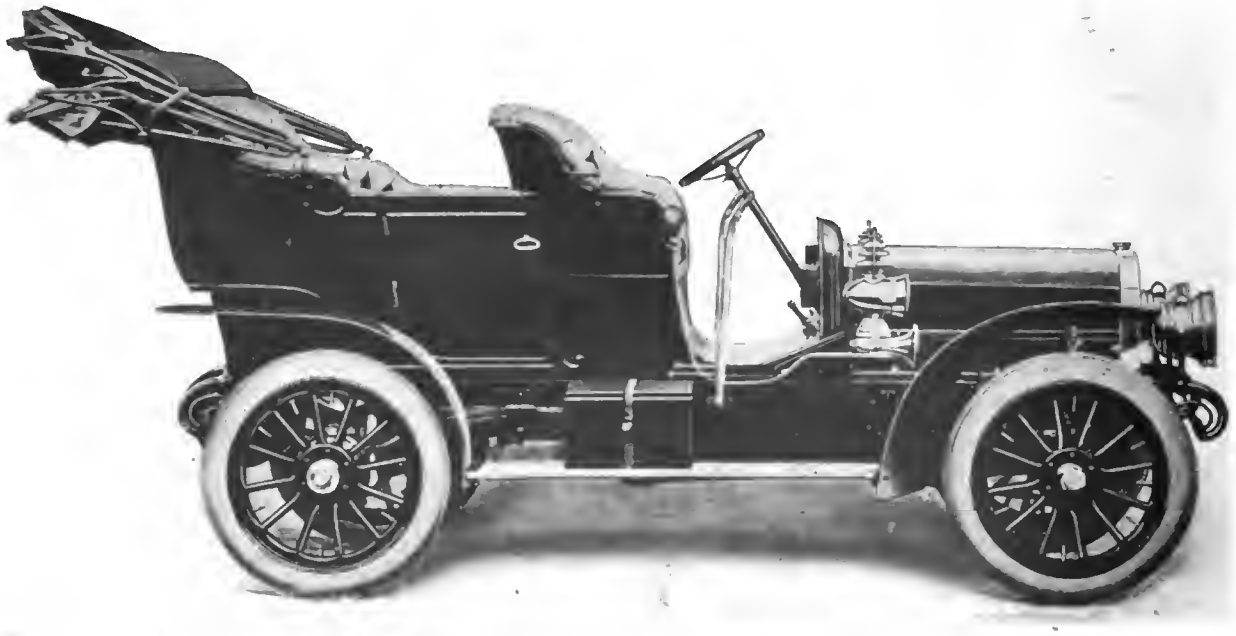
Men are not surprised when clocks stop because they are not wound up, yet novices frequently are puzzled by motor cars refusing to go when they have failed to replenish the gasoline supply. When this is the cause of a car being stalled, every other possible cause is usually first conjectured. An ingenious greenhorn, to whom it happened recently when he was in a raw country on



Dash of Packard Car, Showing Steering Column, Pedals, Coil Box, Speedmeter and Sight-Feed Lubricator Glasses.

Sunday, got home by using a mixture of kerosene and alcohol, which he got at a drug store.—*Erie (Pa.) Dispatch.*

A fool in an auto is just like any other fool, only his opportunities for mischief are greater.—*Exchange.*



WINTON MODEL K 30-HORSEPOWER TOURING CAR FOR 1906, WITH WIDE, SQUARE SIDE DOOR

Letter Box

Clogged Circulation System.

Editor THE AUTOMOBILE:

[268.]—The water jackets, pipes and other parts of the circulating system of my automobile motor, and also of my stationary motor, have become so clogged that I am having a great deal of trouble from overheating, as I cannot get sufficient water through to keep the cylinders cool. The trouble is due to the fact that I am compelled to use hard water all the time. Kindly advise me what I can do to avoid this trouble. A. G. N.

Wellsburg, W. Va.

The best thing to do is to use rain water in your cooling systems. If it is impracticable to do this, the lime and most of the magnesia can be precipitated before the water is used by adding to each gallon of water a small quantity (less than an ounce) of a mixture of equal parts of carbonate of soda and phosphate of soda. If the water is hot matters will be facilitated. Allow half an hour for the sediment to settle and then syphon off the water, taking the greatest care not to disturb the sediment, which will rise from the bottom on slight provocation. To draw off the water, the vessel containing it must be raised from the ground so that its bottom will be a little higher than the top of the vessel into which the water is to be syphoned. Take a piece of ordinary garden hose a little more than twice as long as the height of the vessel used for the precipitation; it will do no harm to have the hose longer, but it should be no shorter than this. Fill the hose with water in any convenient way and cork the ends or hold them so that the water cannot run out. Put one end into the vessel of water, well below the surface, and let the other hang so that the water will run into the empty vessel. Then remove the plug from the submerged end of the hose without taking the hose out of the water, and afterward uncork the outlet end, when the water will commence to syphon out and will continue to run as long as the outlet end is below the level of the surface of the water in the higher vessel, provided the inlet or suction end is kept submerged. If the hose is allowed to "suck air," the water will at once cease to run and the starting operation must be repeated. Care must be taken, however, that the suction does not disturb the sediment. Do not try to drain out the last few inches of water or the sediment will be carried over and the work of precipitation undone.

To get rid of the deposit in your circulating system, use a solution composed of two pounds of common washing soda to a bucket of water. Fill your circulating system with this and let it remain there for a few hours, causing the water to circulate occasionally. Draw off the solution and wash out the system thoroughly with clean water.

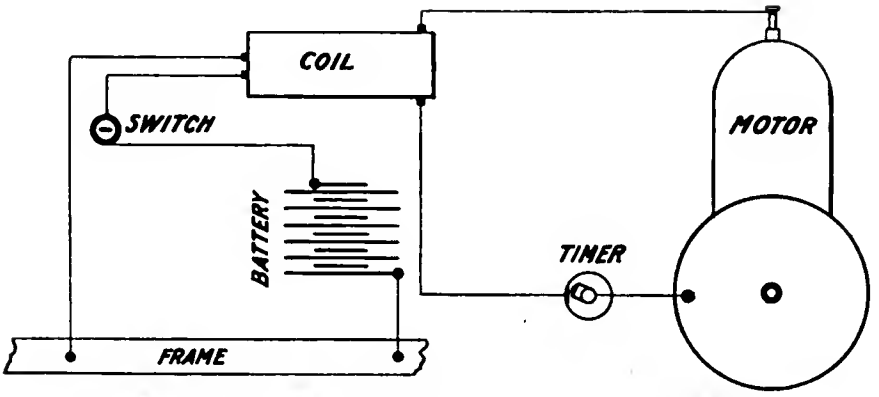


DIAGRAM SHOWING HOW TO WIRE SINGLE-CYLINDER, FOUR-CYCLE ENGINE.

Wiring Jump Spark System.

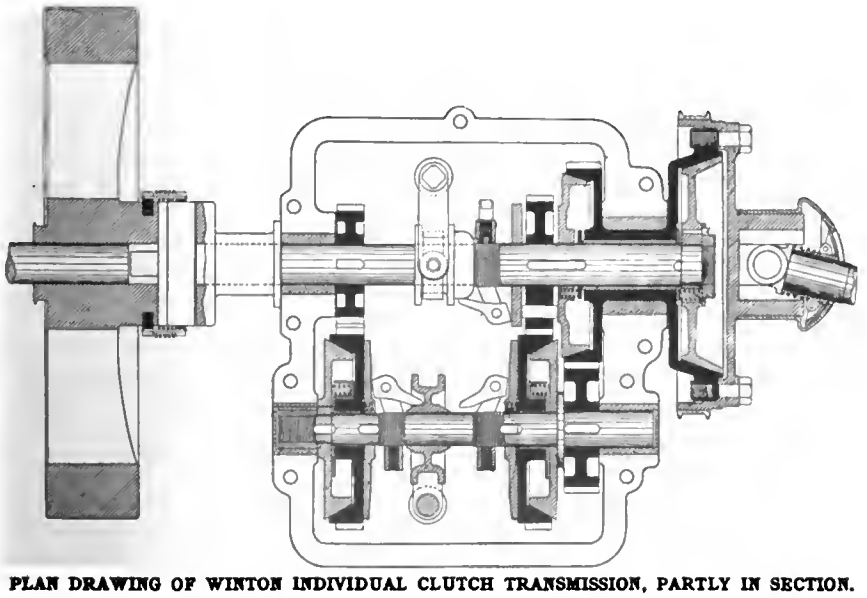
Editor THE AUTOMOBILE:

[269.]—I am building a two-cylinder four-cycle automobile motor with cylinders of four inches bore and five inches stroke, to have jump spark ignition. I would be pleased to know how to wire up the ignition apparatus, and if I can use an ordinary spark coil. F. F.

Baltimore, Md.

Electric ignition apparatus is tricky and unreliable if not properly designed and constructed for the work expected of it; therefore only apparatus made for ignition work on gasoline engines should be used. Otherwise you are sure to have trouble. With regard to the method of wiring, a good deal will depend upon the make of apparatus you adopt; but it may be said that usually one battery terminal leads to one of the primary terminals of the coil, through a suitable cut-out switch, while the other battery terminal and the second primary terminal of the coil are grounded on the engine or frame, so that there will be a clear metallic circuit, not interrupted by joints that may be partly insulated in any way. One of the secondary or high-tension wires of the coil is connected direct to the spark plug, while the other goes to the timer. The high-tension circuit is completed through the metal of the engine, on which the timer and the plug are grounded. The illustration shows diagrammatically the wiring for a single-cylinder motor, illustrating the principle clearly.

If you are sufficiently well up in gasoline engine matters to build an engine, it would be advisable to post yourself on the ignition question by studying some book on the subject.



PLAN DRAWING OF WINTON INDIVIDUAL CLUTCH TRANSMISSION, PARTLY IN SECTION.

August Accident Record in Chicago.

Editor THE AUTOMOBILE:

[270.]—Here is a bit of news clipped from the Chicago *Daily Journal*, which I thought might be of interest to you:

"One hundred and forty-seven Chicagoans were killed by violence during August, not one of them by an automobile. Sixteen were killed by horse-drawn vehicles; 59 were killed by surface, elevated and steam railroads; 22 were murdered; 26 were drowned; 11 fell to their death out of windows; 8 died as the result of careless handling of matches and combustibles, and 5 were killed by the heat.

"Not one of these deaths was caused by the "reckless chauffeur" about whom there is such a strident outcry just at present. Yet automobiles rush through the streets at a speed three or four times as great as that of horse-drawn vehicles. But horse-drawn vehicles killed sixteen Chicagoans in a single month, while automobiles killed nobody.

"Evidently the Chicago automobile is not the deadly devil-wagon some heated imaginations have believed it to be."

W. D. B..

Chicago.

An Advocate for the Vanderbilt Cup Commission.

Editor THE AUTOMOBILE:

[271.]—I have read with a good deal of interest the many adverse criticisms which have appeared in print regarding the action of the Cup Commission in rejecting certain of the cars which finished, for the American team, and nominating for it certain cars which apparently made a poor showing. As so far little or nothing has been said in behalf of the Commission's action, I feel that it is up to someone to say something in their behalf.

To begin with, the Commission was appointed for the purpose of selecting a team of five cars for the purpose of challenging for the Vanderbilt Cup. The rules under which they worked gave them full power to select this team by any method or methods which they saw fit. It seems, therefore, pretty clear that it was the first duty of the Commission to select from the aspirants for places on the team after due and careful consideration of *all* available data the five cars, which, in their judgment, would constitute the strongest team.

If the Commission promised any or all of the competitors that the position at the finish of the elimination trials would determine the selection of the team, regardless of all modifying circumstances, they would have placed themselves in a position where they might have either had to break faith with the contestants or to have selected the poorest available team instead of the best.

So far, however, no evidence has been produced of any such statement or promise being made by the Commission. On the contrary, the Commission expressly stipulated that they reserved the right to select the team regardless of the order of the finish. It would therefore be fair to presume that, as no protest was forthcoming at the time, no previous promise contrary to the foregoing stipulation could have been made, or that, if such promise were made, silence gave consent to its withdrawal. It therefore seems to me that the Commission not only had a perfect right to make an arbitrary choice, but that under certain circumstances if they had not done so, that they would have been remiss in their most important duty.

To illustrate, suppose that either the Locomobile or the Pope-Toledo had had a couple of punctures. In order to justify the Commission's action, it simply becomes a question as to whether the available data justified them in making the selection that they did. It would hardly be fair to pass an opinion on the action of the Commission unless one had access to all the data which helped the Commission to its decision. It therefore seems to me that it would be at least the part of courtesy to reserve judgment on the Commission's action until the results of the cup race do or do not justify it.

HAROLD H. BROWN.

Boston, Mass.

The amiable and reasonable letter of our correspondent calls for every consideration, and as critics of the action of the Commission, we welcome the opportunity for a discussion of several points not touched upon in our editorial pages.

The letter itself must be construed as a recognition on the part of the writer of the need of some defense against the charges made by the press generally; in fact it implies a perhaps unconscious belief that the Commission is not only in need of a defense, but of a defender other than itself.

There may be cases where silence is the best answer to public criticism, but in this case every detail calls for explanation and defense, and yet none is forthcoming except from volunteers such as our correspondent.

A careful reading of the letter discloses the common error of confusing the honorable and sportsmanlike conduct of a contest with the suitability of certain types of cars for a modern road race; but fair play is not a question of mechanics, and the two issues must be kept distinct and separate.

No critic of the Commission has contended that a touring car is the best possible type of machine to represent this or any other country in competition with the most powerful road racing machines. It is not so plain, however, that the Commission in recognizing the eligibility of such cars and accepting a more than nominal entry fee, did not endorse this very proposition. At best it invited what has proved to be a most disastrous situation.

We are willing to overlook certain points in the letter which we consider specious and easily answerable, and for the sake of argument to accept our correspondent's contention of the right of the Commission to decide otherwise than on the actual timing of the elimination trial as a race. Beyond this, however, we contend that this right of selection has been grossly abused. By all equity and common usage in different sports, this right of selection is limited to just such a case as the imaginary one instanced by our correspondent; an incidental mishap to a competitor who has given satisfactory proof of initial merit. This is exactly what did *not* occur in the present case.

The Pope-Toledo car failed through a serious structural defect involving a secondary break that was quite as bad. The car was fully up to the weight limit, and it is an open question whether it can yet be put on the scales in condition to pound the roads for 300 miles at high speed.

The White car was, according to the most reliable accounts, disabled by the nervousness of her driver in a preliminary trial with a small field of home cars; how much better she will be handled in the great race is a very serious question.

The Christie car is an unknown and very doubtful problem in a long road race, a form of sport with which her driver is utterly unfamiliar.

On the other hand, the Thomas, the one racing car which was rejected, though partly crippled through a purely incidental mishap, due to no real structural defect, made a good showing in point of speed and reliability. She was very skillfully handled, and the grit and pluck of her driver in the face of the most discouraging difficulties, with the personal daring of her mechanician, should entitle the outfit to the first consideration where other things are anywhere near equal.

The case of the Royal car is also exceptional; after a bad capsize, she was righted without serious damage and run at good speed to the end.

We contend that the Commission has not only deliberately ignored what *was* and sought out what *was not*, and in all probability never will be; but, to quote from our correspondent, it has not given "due and careful consideration to all available data."

It is no more than a fair inference that the Commission had before it a large amount of data of a certain kind as to why some cars failed, but it absolutely ignored such data as the official times of other cars which succeeded, denying the just right of a hearing to their owners.

If the public persists in what is termed the unfair course of passing opinions without *all* the data, it is only because of the policy of the Commission in making a secret of that which in the interest of fair sport should be published to the world in a signed report.

It is just possible that after the finish of the race, the Commission may decide that its act in selecting the Pope-Toledo, the White or the Christie car has been justified by the result, but there can be no possible justification, then or at any other time, for the weak, vacillating and unsportsmanlike methods which have marred the selection of the American team.

An Exciting Time in Worcester.

Editor THE AUTOMOBILE:

[272.]—The writer and his son, having twice toured Europe on bicycles (1899 and 1900), read with great interest all we find on the subject of touring and touring routes. Ex-President Scarritt's remark, quoted in the Paris interview in your issue of Sep-

tember 21, that "automobile touring is the only way to see Europe," is, we think, strictly correct.

I enclose you, under separate cover, clippings in regard to the experience of myself and family on Sunday, September 24, in Worcester, Mass., in our Stevens-Duryea touring car, which, I can assure you, was very exciting to us for at least one and a half hours.

Why all this unreasonable opposition to reasonable speed for autos alone in a few Massachusetts towns? I have traveled the road mentioned by your correspondent (No. 267) through Florida, Mass., with—not on—a bicycle, and now I smile. The horse standard of speed must pass; local option speed ordinances must be cut out. In my opinion, speed is a matter of judgment on the part of the driver. The writer and his son have run three cars for as many seasons, thousands of miles, without injury to any person or damage to car (have hit a few dogs that jumped in front of the car), and why should we be hounded? We have never been arrested for anything—clean record. H. W. F.

Arlington, R. I.

The clippings sent by our correspondent are from the Worcester *Telegram* and the Providence, R. I., *Evening Bulletin*. Under a huge five-column scare head in the *Telegram* for Monday morning, September 25, is a weird "story" about 3,000 words long, recounting in a sensational and exaggerated way the attempts made by the authorities of Worcester county to stop an automobile bearing a license No. 400 that was supposed to be a car that had been driven at illegal speed through Leicester on a previous occasion.

This seems to have been the car—or, at any rate, the number—that has caused C. W. King, of Chicopee, so much annoyance during the summer, as, after looking up the license record for No. 400, the authorities arrested him as the owner of a car whose number Constable Quinn, of Glidden Tour fame, had caught as it flashed through Leicester one day. Mr. King was summoned into court as the owner, but proved that his car was a little 8-horsepower runabout, and that he had not been in Leicester on the day named. Subsequently it has developed that the car wanted was registered in Rhode Island instead of Massachusetts.

Quinn, who had been on the lookout all summer for No. 400, saw "the long-looked-for devil cart" as it sped into Leicester from Worcester on September 25, and signaled to an officer stationed up the street to stop it. But the officer failed to do so, "the driver trying to run over Chenery," according to the narrative. Then began a succession of frantic efforts to catch the car by telephoning to the authorities of the surrounding towns in the county and getting the community worked up into a great state of excitement, if the story is to be taken at face value. Barricades of wagons were placed across the main streets in Spencer and East Brookfield, where 300 persons congregated to see the fun, and policemen who turned out *en masse* in Podunk, Charlton and Southbridge to halt the runaways were unsuccessful, the car making its way through Sturbridge and finally passing southward over the state line into Connecticut.

The Providence *Bulletin*, after reviewing the affair, says:

"Mr. Francis and his family left this city yesterday morning in the automobile for a trip to a city in Massachusetts. They intended to have a quiet, uneventful run, but fate and the Worcester county constables decreed to the contrary. Mr. Francis has been operating an automobile for the past three years, and during that time has never had an accident of consequence. He has a reputation among automobilists as a careful driver. But Rhode Island chauffeurs, as well as those from other states, have found that in some of the Massachusetts towns the dragnets are out to catch the unwary, who think that when running at an ordinary rate of speed they are within the law. The town ordinances govern the traveling pace, and the rate permitted differs in the several towns. What may be speedy in one town is recognized as lawful in another."

Overheating Water-Cooled Motor.

Editor THE AUTOMOBILE:

[273.]—Noting the letter in THE AUTOMOBILE for September 14 on the overheating of air-cooled motors when skipping, I will be pleased to know why water-cooled motors will always overheat when one or more of the cylinders miss fire. I have a four-cylinder motor fitted with a cooler holding three and a half gallons of water. The motor will run indefinitely without overheating if the cylinders fire regularly, but if there is a miss-firing for fifteen or twenty minutes the water in the radiator will boil and steam will come out through the filling hole. If the skipping continues for fifteen or twenty minutes longer the motor becomes so hot that it continues running after the current from the battery is cut off. Under such conditions I am obliged to draw off the water and refill with cold water every half hour, as long as the skipping continues. One more question. When I stop the motor by turning off the current it will run rapidly backward. What is the reason for this?

AMATEUR.

Detroit.

It is generally conceded by experienced automobilists that if one cylinder of a four-cylinder motor ceases to explode its charges, the motor will overheat; but inquiries show that, as a rule, but little interest is taken in ascertaining the cause of the overheating. It seems probable, however, that the low efficiency of the motor when running on three cylinders, owing to the loss of the impulses, the power absorbed in driving an idle plston and the irregularity of the explosions, makes it necessary to admit heavier charges to the cylinders and also to fire the charges later in the stroke—both tending to increase the amount of heat imparted to the cylinder walls. In your case, doubtless the use of a richer gas under such circumstances causes a carbon deposit in the cylinder or on the piston head; and the particles of carbon, becoming incandescent, ignite the charges and keep the motor running without the proper ignition. The same cause is responsible for the motor running backward. When the current is cut off the motor runs on for a few revolutions, drawing fresh charges into each cylinder. If there is a particle of glowing carbon or a red hot piece of projecting metal in the cylinder, it will cause the charge to ignite so early in the stroke that the piston will be stopped on the upstroke and turned back, causing the motor to run backward; if the same conditions exist in all the cylinders, the motor may get four explosions while running backward; but obviously it must then stop firing, for the exhaust and inlet valves will exchange functions; air will be drawn in through the exhaust valves and forced out through the inlet valves, blowing the gasoline out of the carbureter.

Evidently your motor pre-ignites considerably; it would be well to ascertain whether there are any projections in the cylinders that hold the heat, or to look for carbon deposits, which should be removed.

Troublesome Steam Car Burner.

Editor THE AUTOMOBILE:

[274.]—I have a steam automobile and would like information as to how I can protect the fire from strong winds. The flues through which the gases escape are on each side of the car; the firebox has flues through the bottom. When the wind is strong it blows down through the side flues and blows the flames out through the bottom flues, so that the fire is outside the firebox instead of inside. I covered one-half the firebox as an experiment, but the fire smoked considerably. Would you advise putting dampers in the side flues to shut out the wind? H. W. B.

Lenox Dale, Mass.

A remedy that has been found to work satisfactorily by some users of steam cars of this type is to put dampers in the side flues, as you suggest. These may be arranged to close by hand, or they may be balanced so that a back draught will cause them to close automatically. With a properly balanced damper in each end of each side flue there should be little or no trouble from strong winds blowing down. Covering up the lower part of the firebox deprives the fire of part of its air supply and so causes incomplete combustion. Perhaps some of our readers who have encountered similar difficulties will kindly explain how they overcame their troubles for the benefit of our correspondent.

THE AUTOMOBILE

VOL. XIII. No. 14

Published every Thursday by

THE CLASS JOURNAL CO.,

Flatiron Building, Madison Square,

NEW YORK CITY.

Cable Address - - - - Autoland, New York
Long Distance Telephone - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2.00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 5 o'clock p. m. Monday for the issue of Thursday following.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies Printed in 1904, - - -	**639,300**
" " **This Issue, - -**	**14,000**
" " **Since Jan. 1, -**	**561,000**

***The* Elimination Scandal.**

Following the first shock of the announcement of the selection of the American team for the Vanderbilt Cup race, there has been time for sober thought and calm deliberation; but even under this quieter survey the matter in no way improves, and the more closely it is studied the stronger becomes the need of explanation and justification. It is not necessary to discuss the main defense of the Commission, that patriotism and high motives impelled it to a certain course. Granting all that can be claimed on this point, there is still due to the rejected competitors—but, above all, to that "American public" which the Vanderhilt Cup Commission boldly claims to represent—an explanation of certain specific acts.

The decision of the Commission is of necessity based upon the assumption that it is fully qualified to pass upon the actual winning chances of each car; these depending upon the design and construction, the individual merits and defects as demonstrated in preliminary practice and the final trial, and the personal qualifications of the drivers.

At the time when the entries were accepted the relative chances between the racing and touring cars were wholly on the side of the former in point of speed, and perhaps even in point of endurance. When the final decision was made last week these hypothetical conditions were replaced by certain hard facts—each of the three racing cars in question had scored a bad failure, while the touring cars had given a most convincing demonstration of both speed and endurance. That the race fell short of the proper test for a great international match is due wholly to the Commission; the original course was shortened from 283 miles to but 113 miles, and no inducement whatever was offered to bring out a speed beyond that voluntarily assumed by the leading car. Under these conditions, after protesting vigorously against the shortening of the course, the owners of the touring cars made no attempt to demonstrate any higher speed than that necessary to finish in third and fourth places.

If it is permissible to argue, as the Commission has done, that the cars which broke down in the short trial will be fit company for the 70-mile foreign racers which will pace the procession next week, it is equally fair to contend that the performance of the touring cars under the actual conditions of the trial justified the claim of their makers—that they have a fair fighting chance on endurance and a sustained speed of 55 miles.

It is still a matter of opinion whether the Vanderbilt Cup race of 1905 will be won on absolute high speed, or, like so many previous road races, on moderate speed and endurance. If the first condition should prove to be true, no one would seriously contend that either of the three racing cars which failed in the trial ever had a chance of winning from the field of fifteen foreign cars that have stood the test of the whole season. When it comes to the personal equation, it appears that two of the three men arbitrarily selected by the Commission to meet the great racing drivers of Europe have never competed except in short track and beach races and touring contests.

One need not he possessed of that high technical ability and special knowledge of the American cars, which is the assumed basis of the Commission's action, in order to estimate the probable chances of the Christie, the White and even the Pope-Toledo car as small indeed; and yet it is asserted that they are materially better than those of the Haynes and the Royal Tourist. If this be the case to-day, it now rests with the Commission to explain why the entries of the latter two cars, with checks attached, were not returned by the first mail on May 16—as soon as the horsepower of each car was known. Though subordinate to considerations of sport, the financial side of the case is one which obtrudes itself most unpleasantly; and against the abstract plea of patriotism there now rests in the public mind the charge of cold, calculating commercialism in the retention of the entrance fees for a race which was *not* a race.

There are instances where both individuals and committees have been gifted with the gentle art of committing an unsportsmanlike act in a well-hred manner; but the case in point does not fall in this category. Granting that the Commission had honestly overestimated its ability, and that, when confronted with the actual data of the trial, it realized that a mistake had been made, there was one fair and manly course plainly obvious.

The owners of the three qualifying cars should have been invited to meet the Commission, and the official view should have been fully explained, with a tender of the return of the entrance fee. There is little likelihood that under such usage either of the three owners would have insisted on his rights; and, in any event, public opinion would have been on the side of the Commission. What actually happened was just the reverse of this. While the claims of the broken cars were in some way fully placed before the Commission, every consideration being given to the possibilities for repairs and rebuilding, no opportunity for a hearing was accorded to the owners of the three qualifying cars. A verbal announcement of the names of the team was made in the club parlors after the meeting, but the owners of the rejected cars are even now in official ignorance of the Commission's decision.

Where the observance of the ordinary conventionalities and courtesies of sport on the part of a committee nominally composed of gentlemen and sportsmen of the highest standing would have soothed the natural irritation of the interested parties, and, above all, would have convinced the public of the honorable aims of the Commission, there are now heard complaint, denunciation and threats of legal proceeding. Even a national victory in the Cup race can hardly compensate for the harm to both sport and industry in this mismanagement of the elimination trials.

The new racing board of the American Automobile Association, from which so much was expected, has by its action, in the majority control of the Vanderbilt Cup Commission, gone far in rivaling the unenviable record of its predecessor. The extensive trade interests represented by the touring type have been stirred to a feeling of strong resentment against the association; and, worst of all, the entire automobiling public on both sides of the ocean is certain to pass unfavorable judgment upon acts and methods which invite the most severe condemnation.

✷

Clean the Vanderbilt Cups.

In addition to the long story of the preliminary trial for the Vanderbilt Cup, there appeared in THE AUTOMOBILE of last week an account of another race for a prize of the same name, given this year for a test of the speed and endurance of auto boats. Though under the management of the race committee of one of the leading American yacht clubs, this race stands as an exceptional example of mismanagement, disregard of rules and usages, and general lack of sportsmanship on the part of the principals.

The Vanderbilt Cup for international automobile racing and the Vanderbilt Cup for auto boats were both given by William K. Vanderbilt, Jr., and not only as the donor, but in other ways, Mr. Vanderbilt is intimately associated with both competitions. He is the referee of the automobile cup race, a member of the Vanderbilt Cup Commission, and also commodore of the Seawanhaka Corinthian Yacht Club. While nominally not in supreme authority in either case, as a matter of fact his word is law; and if he were to say that any certain thing must be done because it was fair, or must not be done because it was unfair, there would be small doubt as to the result.

The action of the Vanderbilt Cup Commission in the selection of the American team has aroused more hostile criticism than any other sporting event of the year, and the award of the Vanderbilt auto boat cup, though attracting less attention, speaks for itself. There is now attached to both cups a taint of unfair play, unsportsmanlike conduct and favoritism, which not only defeats the high end for which they were given, but, if allowed to remain, must eventually react upon the name of the donor, high as it now stands at home and abroad.

✸

In a national sense, and up to a certain point, the elimination trials are of quite as much importance as the international race which follows, and in view of the lamentable failures of the past, the Cup Commission has good grounds for congratulation upon the present showing. Out of a field of eleven starters, no less than five completed the course, every car practically in good running condition, and with a high average of speed considering the attendant circumstances. That this was the case is due solely to the presence of the three cars which were so abruptly and unceremoniously "eliminated" after they had served this good purpose. With these cars included, the official record of the "race" stands 45 per cent. to finish against 55 per cent. failures; without them the record would have been 75 per cent. failures to only 25 per cent. placed.

INDIANAPOLIS AUTO SCHOOL.

Special Correspondence.

INDIANAPOLIS, Oct. 2.—The first automobile school in Indiana was opened under the auspices of the Indianapolis branch of the Y. M. C. A. this evening, with an enrollment that surprised those who have the work in charge.

A series of illustrated lectures dealing with the fundamental principles of the different types of cars, their operation, adjustment and care will comprise the first course.

The second course will comprise a series of ten lessons in actual shop work, studying the mechanism of different types of cars and parts of cars. At the completion of the shop course students will be given an opportunity to take up practice in handling machines on the road under the direction of experienced drivers.

The cost of the two courses will be $12.

WILL MAKE WAR ON PETTY PERSECUTION.

Sunday Hold-Ups by Massachusetts Constables to Be Discouraged by Putting Towns to Expense of Prosecution in Superior Court and Causing Fines to Go to Counties.

Special Correspondence.

BOSTON, Oct. 2.—Ever since automobiling became popular in Massachusetts one of the greatest enemies of those who own and drive machines has been the country constable. Much has been suffered at the hands of this type of representative of the law, and his campaigns have netted no inconsiderable sums to the towns he represented. Now the Massachusetts Automobile Association has hit upon a plan to fight him with his own fire. It has been decided to adopt a policy of appealing every case in which a member is charged with overspeeding. If an automobilist is arrested he will appear in court, and, if convicted, will appeal to the Superior Court. Then his case will he taken in charge by attorneys employed by the association and will be tried.

The automobilists think that in the Superior Court they are likely to obtain a more unprejudiced hearing than before the local magistrates, and that their evidence and the evidence of speedometers will have more weight. They feel that this policy will discourage the constables and the towns which employ them. The towns, in the first place, will be put to the expense of contesting the cases with attorneys before the Superior Court. This expense, added to the pay of the constables on Sunday, will cut into the profits.

But, what is still more important, if the automobilists have read the law correctly, is that in case a fine is imposed in the Superior Court it will go into the county treasury, and not directly to the town in which the person was arrested or the offense committed.

The Massachusetts association believes that if the towns where autoists are prosecuted only spasmodically and for what revenue there is in the fines are obliged to go to the expense of a trial and then do not get the fines, their enthusiasm for the enforcement of the letter of the law rather than the spirit of it will be abated materially. By this plan the automobilists of the state are not intending to evade the law or break it, but they are taking this means of combating what they consider the unfair treatment they have received in certain places. Incidentally, they believe that the constables themselves have had a certain financial interest in holding up the autoists; if his hopes of reward are removed he may not be so enthusiastic, even if his town persists in keeping him in the bushes along the roads on Sundays and holidays.

It is not the city policeman or the park policeman who is aimed at. These officials, in the vicinity of Boston at least, rarely hale an autoist into court unless they feel certain that he is making from to five miles more speed than the law allows, and, as a rule, they are impartial about timing machines. The country constable, however, is the man who is appointed to go out on the roads on some Saturday afternoon or Sunday or other day when a large number of machines is expected to pass through his town, and by means of a measured stretch, time and hold up every machine that is making more than the speed permitted by local regulation or state law. In these towns on week days automobilists are not even warned, but on Sundays they are rounded up by the score.

The fines that are imposed by the district or municipal courts in these cases go to the town or city, and in a number of places a very respectable revenue has been derived from automobile cases. One town at least has made nearly $1,000 a year from the services of a few constables along its much-traveled highways on Saturdays and Sundays. The automobilists feel that this kind of enforcing of the law is not for the purpose of preventing speeding, but is more in the nature of a profitable municipal business enterprise.

GLENCOE BUMPS LEGAL.

Mandamus Ordering Their Removal Refused—Case to Be Appealed.

Speciol Correspondence.

CHICAGO, Sept. 30.—The legal fight between former Mayor James A. Patten, of Evanston, and the village board of Glencoe over the famous "bumps" of Glencoe has been decided in favor of the board, Judge Mack yesterday having decided that the bumps were legal.

Mr. Patten and others brought mandamus proceedings against the board to require the removal of the bumps, claiming that they are a menace to automobilists along the north shore, but Judge Mack himself rode over the obstructions and declared, during the progress of the case, that the crosswalks were really a convenience and a necessity for the villagers, and that if anybody had to suffer a slight inconvenience it should be the autoists. Not only did the complainants, who were led by Mr. Patten, lose their suit, but they also had to stand for the costs of the case, which lasted nearly a week.

After the judge rendered his decision Attorney G. P. Merrick for the complainants asked permission to appeal to a higher court, which was granted. The case will therefore be taken before the Appellate Court, and the result will be closely watched by Chicago motorists. Judge Mack, in giving his decision, said in part:

"I find that the courts cannot interfere with the discretionary power vested in the city council of Glencoe. The court also finds that in placing the crosswalks at street intersections in that village the council exercised due precaution against danger to automobilists and others by laying approaches to the walks, so that as they now stand they cannot be classed as obstructions to the public highways. In view of these things, I must dismiss the petition brought by Mr. Patten against the respondent, the village of Glencoe."

ONE COUNTY ENRICHED $3,000.

Special Correspondence.

PHILADELPHIA Oct. 2.—Some idea of the tribute paid by local automobilists to the various borough treasuries of Montgomery county, the roads of which are much frequented by Quaker City autoists, may be had from the report of Justice Wood, of Cheltenham, recently issued.

No less than sixty-eight automobile owners and operators have faced the judge on the charge of overspeeding and have been separated from an aggregate of about $1,300 in fines and costs. Some of the unlucky ones have been fined on more than one occasion, one offender having appeared before Justice Wood three separate times. Other magistrates of the county have also been busy during the season, fines collected during five months reaching fully $3,000.

A man who narrowly escaped an auto was so surprised at his luck that he dropped dead of heart failure. The auto gets 'm comin' and goin'.—Kingsley (Ia.) *Times*

LEGISLATION MUDDLE IN PENNSYLVANIA.

Automobilists to Ask Next Legislature for Relief from Persecution Under Present Chaotic Condition of State and Local Laws—New State Law Not in Effect Until January.

Special Correspondence.

PITTSBURG, Sept. 30.—The course of automobile legislation in Pennsylvania since automobiling became popular has been anything but satisfactory to the interests concerned. Only two acts have been passed by the state legislature, but out of these measures there have arisen innumerable complications and legal technicalities which have increased in exasperating importance as the sport itself has grown. Remedial legislation is now demanded from all the leading cities and especially from Greater Pittsburg, whose automobilists from the first have suffered most from persecution under confusing and misinterpreted legal enactments.

The Pennsylvania act of 1903, which was really the first automobile law enacted in the state, provided in brief as follows: "That every automobile shall be registered in the county prothonotary's office, with the name of the owner, his residence, the manufacturer's name, and the car number; that operators shall have licenses, the fee being $3, and payable to the city or county treasurer; that the speed limit be not more than eight miles an hour in municipalities, twenty miles an hour in the country, and ten miles an hour on hills, at corners, etc.; that registration tags, gongs, etc., be carried; and that violation shall be punishable by a fine of not over $100 or thirty days' imprisonment for the first offense.

The act of 1905 differs in some respects from the first measure. It provides that the automobilist must be at least eighteen years old; that the $3 registration fee shall go to the State Highway Department through the city or township treasuries; increases the speed limit to ten miles an hour in municipalities; allows the commissioners in townships of the first class to fix a ten-mile limit, providing they place warning signs along the road not more than one-half mile apart. The act further provides that autoists must carry lights from one hour after sunset, to one hour before sunrise, and that the vehicle itself may be held in custody if the driver cannot give bail when arrested and taken to the police station. The penalty under the 1905 act is a fine of from $10 to $25, or ten days' imprisonment for the first offense, and a fine of from $25 to $100 or thirty days' imprisonment for the second offense. This act does not take effect until January 1, 1906, a fact which many over-officious authorities have neglected to note during the summer.

The act of 1903 was designed to create a uniform automobile law in Pennsylvania. It made certain unreasonable restrictions that the legislature itself, without much urging from automobilists, attempted to remedy in the act of 1905. While the latter measure was being put through the legislature, certain cities in the state, Pittsburg among the number, were enacting special ordinances of their own, restricting speed and providing for extra taxation. Nearly all of these municipal measures varied in character one from another, and were different from the state law. Some cities and boroughs proceeded to impose extra license fees for city and borough purposes, in addition to the regular state tax.

Out of this chaos of state and municipal measures there have come legal tangles of all sorts. Pittsburg autoists were in the front of the fight all last summer, contending that the city had no right whatever to impose the extra tax. Although beaten in the courts, the automobile interests of the city are determined to secure fair treatment. When the next legislature meets, the law-makers will find a very strong sentiment in all large cities of Pennsylvania, and particularly in Pittsburg, for a revision of present legislation, so that henceforth they will not be subjected to the petty tyranny of local officials, who for political or other reasons, choose to put obstacles in the path of the autoist.

The Honorable James Francis Burke has been for two years legal advisor of the Automobile Club of Pittsburg. He has fought hard and long to secure just and amicable relations between the 1,000 or more automobile owners in Allegheny county, and the city and county authorities. Through his efforts largely, the club has come to be a power that is at least to be reckoned with by the authorities. Mr. Burke is very hopeful of securing more rational legislation in the near future, but has this to say of the legal phase of automobiling in Pennsylvania at present:

"Automobile legislation in Pennsylvania is in a hopeless state of confusion, and is a channel through which many unreasonable restrictions are being enforced, and unjust burdens imposed. True, this condition is not universal throughout the state; some authorities are lenient in the exercise of the authority conferred upon them by the various laws, but others are unreasonable and severe, making the lot of the autoist a miserable one. We need remedial legislation. This legislation should be directed to securing uniformity of taxation in all the cities and boroughs of Pennsylvania—if not through legal requirements, then through a realization on the part of the cities that the present system of discrimination is unjust. The matter of speed will regulate itself largely, for the speed of autos on a highway is wholly a question of education, pending on the familiarity of horses, drivers and pedestrians with their use. This has been shown conclusively in Europe, where, as the auto became a customary sight, it was allowed greater speed. It will be possible to attain greater speed in this country in a few years, with far less danger than accompanies any speed to-day. The history of the automobile in this matter will repeat the history of the trolley car."

WOMAN HELD TO GRAND JURY.

Special Correspondence.

CLEVELAND, Oct. 3.—Mrs. Edith M. Bailey, the Lakewood society woman who is being held on the charge of manslaughter for having run over a pedestrian who died from his injuries, has been bound over to the grand jury. This is the result of a long and tedious hearing in the police court. The police judge held that Mrs. Bailey had been guilty of criminal negligence in operating her machine faster than was reasonable and proper on the crowded thoroughfare where the accident occurred. He said that even though it was shown that the injured man had been guilty of contributory negligence to some degree, it did not lessen the offense of the defendant.

Mrs. Bailey gave bail for $1,000 pending her jury trial before the criminal courts. The decision of the police court was a great surprise to Mrs. Bailey and her friends, as it had been confidently expected that she would be discharged.

DIVIDED ON AUTO QUESTION.

Autophobes of Mexico, Mo., Resolve to Ask for Drastic Laws.

Speciol Correspondence.

MEXICO, Mo., Sept. 30.—Audrain county, Missouri, is divided by politics; but the two political parties cut no figure in the contest. The bone of contention is the automobile, and the question friends ask on meeting is not "How are you going to vote?" but "How do you stand on the automobile question?"

This contention will be the feature of county politics in the fall campaign. As a preliminary, a mass meeting of the people of the county assembled here recently for the purpose of framing resolutions against the operation of automobiles on the streets of this city and on the roads of the county.

It is the purpose of the leaders of the movement against automobiles to instruct the next representative of the county to the state assembly to make active efforts toward securing the enactment of laws:

1. To make all machines stop 100 yards from all approaching horses or vehicles drawn by horses and remain so until the horse or vehicle has passed and proceeded 100 yards beyond the automobile.

2. To place all operators of automobiles under a large bond to hold them responsible for all accidents caused by them.

Some of the more rabid go so far as to insist that automobiles should be run on a private right of way, like a railroad.

The movement against the cars is headed by Judge S. E. Kendall, county recorder; Judge M. C. Flynt, Gen. W. H. Kennan and John X. Brown, and is supported by business men, farmers and stockmen who believe trade in this city is injured by automobiles keeping the farmers off the roads through fear of runaways and accidents.

A thousand men, women and children were in attendance when T. A. McIntyre, as chairman, called the meeting to order in the courthouse. They were of all walks of life. The extremist element was strongly represented. There was talk of boycotting the county papers that stand up for the automobile, while some of the farmers favored firearms and pitchforks.

The auto partisans were also in attendance, and their progressive and neat appearance was in conspicuous contrast to the whiskers and unkempt raiment of the opposition.

After the meeting had been called to order and Judge Flynt elected secretary, a committee of fourteen men was appointed to draft resolutions. A thirty-six page resolution was the product of their efforts. The principal theme was a demand that all automobile owners give bond before running their machines, so that all claims for damages might be promptly settled. This document will be presented to the next legislature (1907) with the request that it be enacted into a law. After an hour and a half the meeting adjourned, after making the officers and the organization permanent, without naming the date for the next meeting.

A number of speeches were made to the resolution, most of them favoring reasonable restrictions so as to insure the safety of traffic on the road.

DRAFTING DENVER ORDINANCE.

Special Correspondence.

DENVER, Sept. 8.—A new ordinance governing the speed and operation of automobiles, is being drawn up, along the lines of that in force in Philadelphia, by J. Frank Adams, of the city attorney's office, and Police Magistrate Stapleton. The Philadel-

phia ordinance is said by them to be the most perfect of any in America.

Speed in the downtown district will probably be limited to a few miles an hour, while all chauffeurs or drivers of cars will have to be licensed. The mental and physical qualities of applicants will be examined as well as their knowledge of the mechanism and handling of automobiles. A clause prohibiting boys and those learning to drive, from practicing on the public streets, will be inserted. Any violation of the ordinance will result in the license being revoked.

WOULD FIGHT LEICESTER ARRESTS.

An identical letter has been sent to the Worcester Automobile Club and the A. C. of Springfield, Mass., by C. L. Barker, of the Norwalk Launch Company, of Norwalk, Conn., telling of his arrest for exceeding the automobile speed limit while passing through the village of Leicester, Mass., with his wife and using every precaution that any reasonable citizen could expect. He states that the officer who made the arrest said that about one in every five automobilists who pass through the place is arrested on a similar charge. He was required to put up a bond for $50 to insure his appearance in court when the case came up for trial.

Mr. Barker, who was much incensed over the matter, considering the arrest unwarranted, proposed that other automobilists who are interested, contribute small or large amounts to the secretary of the Worcester A. C., to make a fund for employing good attorneys and carrying a case to the higher courts, until the spirit rather than the exact letter of the law shall be made to apply in Leicester. He offers to contribute $30 to $50 himself.

MINNEAPOLIS EXAMINES OPERATORS.

Special Correspondence.

MINNEAPOLIS, MINN., Sept. 30.—This city is probably unique in the matter of licensing persons to operate cars within the city limits. The state demands a license for operating a car and now comes the city council with an ordinance specifying the qualifications of persons who shall be permitted to drive cars through its streets. Owing to the large number of children who were allowed to operate machines in the business district of the city, the council passed the restrictive ordinance which is now in force.

During the last two weeks a special examining board to pass on the fitness of operators has been in session, and several hundred applicants have appeared before it for examination. First of all, the board compels the applicant for a license to pass a simple physical examination. He is examined for defective vision, and if it is shown that because of poor eyesight an automobile would be a dangerous thing to place in his hands, he is denied a license.

The technical part of the examination is conducted by electricians, who examine the applicant upon the construction of the machine, and the action of the levers and brakes. He must give a demonstration of his ability to control the machine when in action.

The state capitol building at Hartford, Conn., gets into many thousands of photographs of automobiles. Some photographer from the building made such an admirable background that the picture-takers habitually stand the machines before it when directing the camera.—Chicago *Post*.

A New York chauffeur went hunting for a leak in the gasoline tank of his automobile with a lighted match. He found it at once.—Springfield (Mass.) *Republican*.

INDIANAPOLIS RACE MEET.

October Program Arranged by Local Racing Association for Fair Grounds.

Special Correspondence.

INDIANAPOLIS, Oct. 2.—In place of the usual spring events that have been given in this city in past years, the Indianapolis Automobile Racing Association will hold a meet at the State Fair Grounds some time between October 20 and October 30, the exact date to be fixed within a few days. The promoters expect to have all of the best professionals and amateurs on hand to enter the various events scheduled on the program. The program will consist of races for cars that are entered in the Vanderbilt Cup race, handicap races, owners' races and various others.

The promoters hope to arrange a match race between Carl Fisher, Barney Oldfield and Tom Cooper. Fisher is having a Premier racing car built, and if it is completed in time there is no doubt but that he will consent to enter the special feature of the program. Fisher and Oldfield still have one more heat of the Manufacturers' Diamond Cup race to decide the winner, and the event may be pulled off at this time.

One of the leading features of the meet will be night events, the track being brilliantly illuminated with acetylene gas from about 500 tanks of gas with reflectors placed about the track.

PIKE'S PEAK CLIMB IS OFF.

The mountain climb to the top of Pike's Peak, which was being promoted by G. A. Wahlgreen, of Denver, to be held in the latter part of September, has been postponed until next year. Lack of interest and failure to raise $5,000 required to put the mountain road in fit condition for the event are given as the reasons. R. E. Olds, of Lansing, made a special trip to Denver recently to investigate the feasibility of entering a 16-horsepower Reo stock touring car. After inspection of the road he said that it would be quixotic for any car to undertake the climb, for the road is in an unsafe and impassable condition. When the necessary $5,000 shall have been spent to put the road in repair, Mr. Olds says he will be among the first to enter a car for the competition. It is now proposed to hold the contest some time next year, if a sufficient number of entries and subscriptions can be secured to make it a success.

N.Y.M.C. ECONOMY TRIALS.

Entry blanks and rules and regulations for the economy test of the New York Motor Club have been issued, giving details of the conditions under which the contest is to be conducted. As already announced in THE AUTOMOBILE, the test will cover a period of one week, from October 23 to 28; on the first two days the cars will run from New York to Philadelphia and return, 180 miles; on the next two days, New York to Albany and deturn, 300 miles; and on the last two days, New York to Southampton, L. I., and return, 202 miles; total, 682 miles. Entries will be divided into five classes as follows: Class A, cars costing not more than $750. Class B, cars costing more than $750 and not more than $1,500. Class C, cars costing more than $1,500 and not more than $2,250. Class D, cars costing more than $2,250 and not more than $3,500. Class E, cars costing more than $3,500.

The principal prize will be the National Economy Trophy of the New York Motor Club, to give the trophy its full title. This will be valued at $500, and will become the property of the entrant of the car which, irrespective of class, shall make the most economical run per passenger carried over the whole distance. In addition to this, there will be five gold and five silver medals to be awarded to the cars making the best and the second best showing in each of the classes; the car winning the trophy cannot take one of these medals. There will also be offered two gold medals, one donated by W. J. Morgan, and the other by A. L. McMurtry, the first for the car consuming the smallest quantity of gasoline per passenger, and the other for the car having the least ignition trouble during the week. Cars that carry their passengers at a cost of less than the railroad fare for the same distance, $14.53, will be awarded certificates. The entry fee is $100; entries may be made with A. B. Tucker, secretary N. Y. M. C., at 31 West Forty-second street, New York, up to noon on Friday, October 20.

MORE ATLANTIC BEACH RACES.

Special Correspondence.

ATLANTIC CITY Oct. 2.—Another beach race meet will in all probability be held here before the season closes. At last week's meeting of the local automobile club President Edge was empowered to attend the Vanderbilt cup race on Long Island and secure entries. Both the Reading and Pennsylvania railroads have given assurances of support and co-operation in the way of cheap excursion rates.

It is the hope of the promoters that the mile and kilometer straightaway records will be broken on Atlantic City beach before snow falls.

COUNTY FAIR RACES IN OHIO.

Special Correspondence.

CANTON, O., Oct. 2.—An automobile race meet was one of the leading features of the Stark County Fair here last week. Before the opening of the races a hundred or more machines gave a parade around the track. Nearly all the towns in this district were represented. In a three-mile race W. E. Homer, in a Winton, won from C. D. Craben in a Cadillac and Frank Osborn in a Franklin. Osborn won a five-mile match from Tony Wilson (Cadillac) and Robert Hulford (Cadillac); fastest mile, 1:39. Mert Phillips, of Cleveland, with a 1906 White with Cape top up and carrying four passengers, made a mile in 1:54.

CITY CAR IN GREAT DEMAND.

Special Correspondence.

CLEVELAND, Oct. 3.—Councilmen and others who scoffed at the municipal automobile have become thoroughly converted. Some weeks ago the city council, at the urgent demand of the heads of the departments, authorized the purchase of a Stearns automobile. It appears the machine is in danger of being worn out the first season, for it has been in constant use. The head of the board of public service, the city clerk, the superintendent of streets, the council committees and a dozen other officials have been in constant wrangle over whose turn it was to use the machine, with the result that a measure will be introduced to buy several more municipal cars.

A Syracuse, N. Y., undertaking firm has recently purchased and put in successful operation an automobile ambulance which, it is claimed, will reach the scene of an accident long before the horse ambulance. The article did not state whether or not people are just dying to ride in it.—Nashville (Tenn.) *Banner*.

JERSEY CLUBS AFFILIATE.

Eight Clubs Aggregating 1,200 Members Form State Branch of A. A. A.

Special Correspondence.

NEWARK, N. J., Sept. 30.—As the result of a meeting of representatives of eight automobile clubs from all parts of New Jersey, held in the office of Frederick R. Pratt, in the Prudential Building, last Wednesday evening, a state association to be known as the Associated Automobile Clubs of New Jersey was organized. A constitution was adopted after discussion.

The clubs represented at the meeting and which became charter members of the state association, are the New Jersey Automobile and Motor Club, of Newark; the Hudson County A. C., of Jersey City; the New Jersey A. C., of Paterson; the A. C. of New Jersey, of East Orange; the Mercer County A. C., of Trenton; the Monmouth A. C., of Asbury Park; the Atlantic City A. C., and the Cape May A. C.

As set forth in the constitution, the object of the organization is to conduct a social and protective body of all persons interested in automobiling in New Jersey, and to unite against unjust legislation, as well as to maintain the rights and privileges of automobilists in general.

Initiation fee for clubs was fixed at $10; for individual members of clubs at $1, and for non-affiliated autoists at $2. The annual dues will be $2 per member.

Frederick R. Pratt, former president of the New Jersey Automobile and Motor Club, was elected president of the new association. Action as to the other officers was deferred until the other members throughout the state could be heard from.

A. G. Batchelder, secretary of the American Automobile Association, was present in behalf of the national organization, and to assist in the work of organizing.

With the eight clubs represented at the meeting, the new organization will aggregate a membership of about 1,200. Efforts will be made to form clubs in every town in the state where automobiles are owned, and to affiliate them with the association.

RECORD OF CARS IN LEICESTER.

Special Correspondence.

WORCESTER, Sept. 28.—A record of all passing vehicles kept by a flagman posted by the Worcester Automobile Club at the Leicester-Spencer town line from August 4 to the end of the month was made public recently. The flagman was employed to warn automobilists of Constable Quinn's timing trap and to keep a record of the number of automobiles and horse-drawn vehicles passing through Leicester daily. The results are surprising.

The record shows that 773 autos passed through as compared with 574 horse-drawn vehicles, notwithstanding the notoriety given the town's police trap at the time of the Glidden tour. The greatest number of automobiles tallied was on August 6, when forty-seven were counted as compared with seventeen carriages and wagons. The daily average was 30.0 automobiles and 22.9 horse-drawn vehicles.

Worcester automobilists are much interested in the report that the authorities of Leicester recently appropriated the necessary money to purchase a length of hose, nozzle and other fittings for their police to use on automobilists who refuse to stop when flagged. Constable Quinn has given up his private work. His automobile record for Sunday, September 10, was eight summonses and convictions. As his "rake-off" is almost $6 each, it is readily seen that it pays a great deal better than the manufacture of card clothing.

COLORADO CLUB ECONOMY RUN.

Special Correspondence.

DENVER, Sept. 28.—Arrangements have been completed by the Colorado Automobile Club for an economy club run to Perry Park and return, a distance of eighty-five miles, on Sunday, September 30. It will be a go-as-you-please contest, and the standing of the competitors will be determined upon the basis of gasoline and cylinder oil consumed and the repairs made. A big turn-out is expected. This will be the first run held by the club, and if successful will be made a semi-monthly event.

LOCAL RACING ASSOCIATION FORMED

Special Correspondence.

SAGINAW, MICH., Sept. 30.—The Saginaw Automobile Racing Association has been formed in this city with the following officers: A. W. Norris, president; H. T. Wickes, treasurer; R. Max Boyd, secretary. The object of the association is the holding of speed tests. A racing carnival has already been arranged for October 8, when the chief attraction will be Barney Oldfield with the *Green Dragon* and his new racer. His competitor will be Le Fevre, the Frenchman. Several events will be pulled off among Michigan's best drivers. Drivers from other states are also expected to enter. Under the terms of his contract Oldfield must do five miles in better than five mintes.

NEWS NOTES OF THE CLUBS.

NEW YORK.—The New York Motor Club has sent out a circular to members asking for an expression of opinion as to the advisability of joining the American Automobilc Association and the New York State Automobile Association.

SAN FRANCISCO.—The A. C. of California and the Motor Cycle Club of California have joined forces in getting out a club organ which rejoices in the musical title of "Toot-Toot." S. Gayness is the editor, and the organ is published "in the interests of good roads and for the betterment of conditions affecting motorists in general."

INDIANAPOLIS.—Officers have been elected by the Indianapolis Automobile Racing Association for the ensuing year as follows: A. C. Newby, president; Howard Marmon, vice-president; F. W. Hobblitt, secretary and treasurer. Executive committee: A. C. Newby, H. O. Smith, Robert Hassler, Herbert Rice, Walter Marmon and Carl G. Fisher.

PITTSBURG.—The 1905-6 yearbook of the A. C. of Pittsburg, has made its appearance in very neat form, with embossed red cover and illustrated with well-made half-tone engravings, showing exterior and interior views of the new clubhouse on Baum and Beatty streets. The membership list contains 290 names. The officers are given as follows: President, George E. Turner; first vice-president, James Francis Burke; second vice-president, E. J. Kent; third vice-president, George H. Flinn; treasurer, Edward Kneeland; secretary, W. Linford Smith.

SAN FRANCISCO.—In addition to the customary constitution and by-laws, roster of officers and list of members, the year book of the A. C. of California for 1905, recently issued, contains the full text of the California automobile law, enacted by the state legislature last spring. The membership list, compiled on July 15, 1905, contains the names of 400 active members, and four honorary members. The headquarters of the club are at 707 Merchants' Exchange, San Francisco, and the officers as follows: President, R. P. Schwerin; vice-president, J. D. Spreckles; treasurer, S. G. Buckbee; secretary, A. J. Frey.

WASHINGTON, D. C.—A committee of five is hard at work on the plans for the "house warming" and banquet of the new Washington Automobile Club, to be held October 9 at the club's quarters in the Villa Flora clubhouse. A number of prominent government officials have been invited to attend and more automobile talk will be heard at this gathering than ever before in Washington. The club idea has taken well, and the membership is growing steadily. The club's initial run will be held October 14, when Captain Caverly will pilot his mates to the Frederick, Md., fair. The road will he marked with white arrows.

PITTSBURG.—The Automobile Association of Center County has been organized with the following officers: President, George C. Watson, State College; vice-president, A. C. Mingle, Bellefonte; secretary and treasurer, Robert F. Hunter, Bellefonte; executive committee, George C. Watson and C. D. Fehr, State College; John Porter, Lyon, and Robert F. Hunter, Bellefont. The purpose of the association is to promote the interests of horse owners mutually with that of automobilists.

MONMOUTH, ILL.—Enthusiastic automobilists of this place, decided, at a recent meeting, to reorganize the local club and to affiliate with the American Motor League. The new organization is to be called the Monmouth Automobile Club. J. S. Brown was elected president, and Allen Pattee secretary and treasurer. The club has a membership of more than twenty, and new members are constantly joining.

NEW YORK.—The New York Motor Club will, on or about October 1, remove to its new clubrooms in "The Cumberland," corner 54th street and Broadway. By changing to this location, the club secures very comfortable headquarters in the center of the automobile district, and is able, thereby, to provide more carefully for the needs of its members. It is probable that a luncheon club will be organized in connection with the cluh. A considerable number of applicants for membership have been presented to the committee.

AUTOS AT ELKHORN FAIR.

Special Correspondence.

ELKHORN, WIS., Sept. 28.—The ancient agricultural institution known as the Elkhorn Fair, that is now nearly sixty years old, broke the record here last week in the matter of unique variety of equipages that were seen inside the grounds. It is doubtful whether another fair in the entire country, outside of a state exhibit, has attracted so many costly automobiles.

On one of the days of this fair no less than 25,000 people were in attendance, and thousands came in touring cars and runabouts from points other than those named.

AMERICAN AND FOREIGN AUTOMOBILE CONTEST AND SHOW FIXTURES.

Domestic.

Oct. 14—W. K. Vanderbilt, Jr., International Cup Race, Long Island; A. A. A.
Jan. 13–20—Open Automobile Show, Sixty-ninth Regiment Armory, New York; A. C. of America.
Jan. 13–20—Licensed Car Show, Madison Square Garden, New York; A. L. A. M.
Jan. 22–27—Ormond-Daytona Beach Tournament, Florida.
Feb. 3–10—Chicago Fifth Annual Automobile Show, Coliseum Building; S. A. Miles, Mgr.
Feb. 12–17—Detroit Automobile and Sporting Goods Show, Light Guard Armory; Tri-State Automobile and Sportsmen's Association.
Feb. 20–Mar. 8—National Auto Boat and Sportsmen's Show, Madison Square Garden, New York.
Mar. 16–23—Boston Automobile Show; Boston Automobile Dealers' Association.

Foreign.

Oct. 1—Chateau-Thierry Hill Climb, France.
Oct. 4—Speed Trials, England; A. C. of Great Britain.
Oct. 6—Frankfort Automobile Exhibition, Germany; German A. C.
Oct. 6–15—Leipzig Automobile Exhibition, Germany.
Oct. 7—Scottish A. C. 100-Mile and Consumption Trial.
Oct. 9–14—German Heavy Motor Vehicle Trials; German A. C.
Oct. 15—Gaillon Hill Climb, France.
Nov. 3—French Voiturette Trials.
Nov. 10 or 17—Quarterly 100-Mile Trials, England; A. C. of Great Britain.
Nov. 14–18—Australian Reliability Trials, Sidney to Melbourne.
Nov. 17–25—Fourth Olympia Automobile Show, London; Society of Motor Manufacturers and Traders.
Nov. 17–25—Stanley Motor and Cycle Show, Crystal Palace, London.
Dec. 8–24—Paris Automobile Salon; A. C. of France.
Mar. 24–31—Cordingley's Fourth Automobile Show, Agricultural Hall, London.

OLDS FACTORY BOUGHT.

Detroit Works Taken by Boat Builders—Elmore Company to Move.

Special Correspondence.

DETROIT, Sept. 30.—A deal was consummated last Tuesday, whereby the Michigan Steel Boat Company purchased the Olds Motor Works property and the Detroit Union Railway car barns' property adjoining Morgan & Wright's new site on Jefferson avenue. The property purchased has a frontage of 393 feet and a depth of 50 feet, and will be the largest plant for the building of small boats in the world. Part of the machinery used by the Olds Motor Works was also bought by the boat company. Seven hundred men will be employed.

The Elmore Manufacturing Company, of Clyde, O., has been negotiating for a site in this city, with the intention of moving its plant here during the coming winter. Through agents, it made a strenuous effort to secure the Olds factory, which would have given it excellent facilities, but the price at which it was held would not be considered by the Elmore people. Several other pieces of property are under advisement. The Elmore company employs more than 200 workmen the year around. When the plant is moved, a large number of the employees will come to Detroit with the company.

CHICAGO SHOW APPLICATIONS.

Application blanks and diagrams for exhibition spaces in the Fifth Annual Chicago Automobile Show have been mailed to the trade. The show dates are February 3 to 10. All available space in the Coliseum building has been utilized, including the floor of main hall and annex, the gallery, and the second floor of the annex, or concert hall. The space numbers run up to 289. All equipment of spaces, such as carpets, rails, lights and signs, will be provided by the management, charges for the same being included in the space rental, which is $1.15 per square foot on the main floor and $1 per foot everywhere else. First choice of location will be given to the applicants who have been exhibitors at the largest number of previous shows.

As last year, the main floor is to be devoted to the display of complete cars and chassis, while the gallery will be devoted to exhibits of members of the Motor and Accessories Manufacturers and members of the National Association of Automobile Manufacturers who make parts and accessories. Space on the second floor of the annex will be allotted to other makers of and dealers in parts and supplies. Allotments are to be made November 1. All applications received up to October 28 will have equal consideration, with the exceptions noted.

Requests for blanks and additional information should be made to Samuel A. Miles, manager, 7 East Forty-second street, New York.

SANCTIONS ENGAGE ATTENTION

Applications for local automobile show sanctions were to be considered at a meeting of the show committee of the National Association of Automobile Manufacturers set for Wednesday, October 4. Following this meeting a report of the committee was to be submitted to the executive committee and sanctions granted for dates that will not conflict. The only shows so far announced with dates set are the A. L. A. M. and A. C. A. shows in New York, the Coliseum show in Chicago, and the Detroit and Boston shows.

MERCEDES SALESROOM IN NEW YORK

The announcement made in THE AUTOMOBILE of September 21 that an American syndicate had acquired the sole agency in the United States and Canada for the Mercedes cars, is followed by the news that the syndicate, consisting of Messrs. Wineburgh, Morse and DeWitt, has made a contract with Smith & Mabley, of New York, to handle the cars, the latter firm thus becoming the selling agents for the machines. The new and splendid quarters of Smith & Mabley, at Broadway and Fifty-sixth street, New York, which will be ready for occupancy within a short time, will provide a suitable center for the distribution of the famous German cars. A complete stock of all Mercedes parts will be kept on hand, and repairs will be in charge of mechanics brought over from the parent factory. Smith & Mabley will, when desired, attend to deliveries abroad, so that American tourists can find their cars waiting for them on arrival on the other side. The first deliveries will be made in November.

TO BUILD GYROSCOPE WHEELS.

Special Correspondence.

GRAND RAPIDS, MICH., Sept. 30.—Contract has been let for the construction of a new factory for the Couple-Gear Freight Wheel Company, recently organized among business men of Grand Rapids for the purpose of manufacturing the Holson gyroscope wheel for motor trucks. The building will cost in the neighborhood of $10,000, and will be of brick 50 by 200 feet.

Wheels of but one size will be manufactured in the plant. Other sizes will be made at other plants to be erected here as soon as the development of the business makes them necessary. Each wheel has an electric motor in the hub. The company will manufacture, besides the wheels, complete chassis ready to be fitted with truck body, batteries and tires. The company has made arrangements with a number of manufacturers of large electrical trucks to furnish some of its parts. The plant is to be in operation January 1, 1906.

FINE CARS IN BUTTER REGION.

Special Correspondence.

ELGIN, ILL., Oct. 2.—Perhaps no town in the middle West has made such progress as Elgin in substituting modern machines for primitive contrivances in the automobile line. Elgin took to the new vehicles very cautiously; ventures were few and second-hand cars of a wonderful variety found owners in the city.

During the past summer all of this has changed, and now some of the finest cars of the Fox River valley, and even of northern Illinois, are owned in the Butter-Watch city. Some of foreign manufacture are owned by Elgin business and professional men. Other modern high-priced machines have entirely driven out the puffing rattle-wagons with which owners began their auto experience.

The roads of Kane county are in excellent condition, and those of the surrounding counties are as good.

RECENT INCORPORATIONS.

Buffalo Automobile Body and Trimming Co., Buffalo, N. Y.; capital, $25,000. Directors: B. C. Beesing, J. A. Hislop, W. F. Beesing, Buffalo.

Barnes Gear Co., Oswego; capital, $50,000. Directors: C. A. Barnes, Marcia I. Barnes, Thomas Moors, Chas. A. Bentley and Fred V. Mardock.

Mills-Kennedy Co., to deal in automobiles; capital, $25,000. President, Edward P. Kennedy; clerk, A. B. White; treasurer, A. Ernest Mills.

William Roche Dry Battery Co., Huntington, N. Y.; capital, $25,000. Directors: E. A. Lowe, North Plainfield, N. J.; Conrad Milliken, F. W. Conger, New York.

St. Joseph Automobile Co., St. Joseph, Mo.; capital, $2,000, all paid. Incorporators: W. P. Fulkerson, E. A. King, E. P. Snowden, B. J. McGuire and F. F. Fulkerson.

Export Rubber Manufacturing Co., Brooklyn, N. Y., to manufacture and deal in rubber goods; capital, $25,000. Incorporators: William R. Jackson, Gustav H. Berwin, and Fred W. Buermeyer, all of Brooklyn.

The Karbach Automobile and Vehicle Co. of Omaha; capital, $75,000. Incorporators: A. P. Karbach, R. L. Karbach and H. K. Wheelock. The firm will engage in the manufacture and sale of automobiles and other vehicles.

News and Trade Miscellany.

The Philadelphia Automobile Dealers' Association has decided to promote a hill-climbing competition, the date selected to be some Saturday afternoon during the latter part of the present month. The course selected will in all likelihood be the mile-long rise leading from the Wissahickon valley to the summit of Chestnut hill.

The American Motor Company, which was recently organized in Pennsylvania, has opened offices on the fifth floor of the Park building, Pittsburg, with A. P. Shumaker as manager. The company is arranging to erect a three-story brick garage in Diamond street, within a square of the center of the downtown district. It will make a special effort to build up a large business in the storing of vehicles coming in from the East End and suburbs. Mr. Shumaker has already secured the agency of the Royal and Premier cars, and is now negotiating for three other large agencies.

O. L. Mead, of the People's Auto Line, of Monroe, Mich., has made the announcement that within ten days Monroe will have a complete auto street car system, covering the city from limit to limit. A fifteen-minute schedule is to be maintained. The interurban line now in operation as far as Dundee will be extended to Adrian via Tecumseh. The beginning of the service is now awaiting the arrival of the motor cars from Detroit.

The Minneapolis Y. M. C. A. night school is about to start a course of instruction for automobile owners and chauffeurs. It is designed to teach the care, maintenance and handling of automobiles and motorcycles. Apparatus for demonstration purposes has been secured. The course will consist of twenty-four lessons, including lectures and practical demonstration work.

A distributing agency has been established for the Fraver Miller cars in New York, with H. H. Knepner in charge, and under the title of the Frayer Miller Motor Car Company. agents and prospective purchasers of the Fraver Miller cars will be taken care of for the present from the temporary address. Later in the year, the company will be established in a home in the center of the automobile district.

R. M. Owen, sales manager for the Reo Motor Car Company, has returned to New York City from a two-weeks' visit in some of the leading Western cities, during which trip Mr. Owen closed a large number of contracts for 1906.

The Ford Motor Company has leased the four-story building at 1721-1723 Broadway, New York City, which they will occupy as a garage after alterations have been completed.

The Auto Motor Company, of Cincinnati, O., has purchased a piece of ground on Sycamore street, on which a modern, fireproof garage will be erected.

C. R. Johnson has secured the Coldwater, Mich., agency for the Jackson automobile.

The Pittsburg Motor Vehicle Company, recently incorporated with a capital of $200,000, has purchased a plot on Summerlea street, Pittsburg, and has begun the erection of a factory, where the company will carry on the manufacture of electric delivery wagons. The officers of the company are: President, R. B. Ward; vice-president, H. P. Kuhn; treasurer and general manager, Thomas P. Pfarr; secretary, Charles Ward.

Ware, Mass., is to have an automobile plant. F. A. Ruggles, of that place, has leased the old electric light building, where he will carry on the manufacture of commercial vehicles.

Only fifty of the 1,000 drivers in Minneapolis had secured licenses to run machines within the city limits as required by the new city ordinance. Most of them are fighting the ordinance. It is expected that the authorities will take some action to force them to submit to the examination as to their qualifications as drivers.

A tour through the East was recently made by C. E. Test, president, and A. C. Newby, secretary, of the National Motor Vehicle Company, of Indianapolis, accompanied by W. Z. Wall and two of Mr. Test's sons. The party traveled in two National touring cars, one a 1906 model, and encountered only minor difficulties on the trip, covering nearly 2,500 miles.

Dr. Russell H. Cool, of San Francisco, played the part of host recently at his country home near Los Gatos, when about fifteen members of the Bohemian Club went out for a two days' outing. The guests made the trip from the city in a Packard truck, driven by A. B. Costigan, and returned to San Francisco in the same way, Dr. Cool returning to the city with his friends.

Among recent incorporations is that of the Stoddard-Dayton Agency of New York, which has secured the agency for the Stoddard-Dayton cars for Greater New York and the State of New York, as far north as Poughkeepsie; also for Long Island, Jersey City, and for Fairfield and New Haven counties in Connecticut. A store at 1,853 Broadway, New York, is being fitted up in an attractive manner, special conveniences being installed for the comfort of customers, including a ladies' parlor. The floor space will be forty feet wide and ninety feet deep. A well-equipped repair shop will form part of the establishment. C. H. Hill, the president of the new company, will have charge of the sales department. The 1906 models of the Stoddard-Dayton cars will consist of an 18-horsepower runabout, a 35-horsepower touring car, and a 50-horsepower touring car.

Fred P. Brand, formerly traveling representative of the Locomobile Co. of America, and later with the Electric Vehicle Co., has been appointed manager of the Apperson Bros.' Chicago branch, 394 Wabash avenue, in place of John E. Fry, resigned. Mr. Fry's resignation was due to ill health, and he has arranged to go to Colorado to recuperate.

The first car of the American Motor Car Co., of 910 State Life Building, Indianapolis, Ind., is practically finished. The car is equipped with a "Continental" four-cylinder motor and has shaft drive. The plans of the company have not been perfected, but it is expected that cars will be marketed in the spring of 1906. Harry Stutz is the designer of the car.

A. G. Seiberling, well known in manufacturing circles in Peoria and Ottawa, Ill., has been appointed general superintendent of the Haynes Automobile Company's factory, at Kokomo, Ind.

A plant is being erected by a new Detroit concern, the Western Malleable Steel Co., at River and Clark streets. A specialty will be made of automobile work, for which a special grade of European iron will be imported and treated by a foreign process. It is expected that the plant will be ready to accept orders in sixty days. The enterprise is backed by Michigan capitalists and is under the business management of Harry Gordon.

The Haynes Automobile Co., of Kokomo, Ind., (formerly the Haynes-Apperson Co.), will build two four-cylinder cars for 1906, one of 30-horsepower, and the other of 50-horsepower, the latter being the same as the car which finished fourth in the Vanderbilt cup elimination trials. New machinery is being installed to increase the capacity of the plant.

The Apperson Bros. Automobile Co., of Kokomo, Ind., recently shipped three touring cars to New York, including a 50-horsepower machine.

The Premier Motor Mfg. Co., of Indianapolis, Ind., has completed changes in the big air-cooled racer which bring it down to the limit of 2,204 pounds. Double side-chain driving gear has replaced the original propeller shaft and bevel gears, and other changes of less magnitude have been made. The car will be entered in speed contests whenever possible.

The Oldsmobile will hereafter be handled in New York City by the Oldsmobile Company of New York, an agency owned by John T. Cutting, late of the Cadillac Automobile agency in New York. A salesroom has been secured at 1653 Broadway, and a repair shop will be established near by.

The Clarendon Garage, at Sea Breeze, Florida, connected with the Clarendon Hotel of that place, will be opened on December 1, 1905. The garage will be fully equipped for handling both gasoline and electric automobiles, and will have facilities for doing all kinds of machine work, tire work, vulcanizing and so on. Thomas A. Egan and Frank G. Grinnell, of Narragansett Pier, R. I., will personally manage the establishment.

Announcement is made by William Roche, who has carried on the manufacture of dry batteries since the year 1897, at 52 and 54 Park Place, New York City, that his business has been incorporated with a paid capital of $25,000, and will be known in future as the William Roche Dry Battery Co. The officers of the company are: William Roche, president; Ernest A. Lowe, vice-president; C. Laton Ford, treasurer; William C. Hubbard, secretary.

The business of the Springfield Automobile Company, of Springfield, Ohio, has been sold to Columbus parties who are already engaged in the business. The machinery and stock is being removed to Columbus, and C. C. Bramwell, who has been at the head of the Springfield company, will go with the new concern.

Alexander Winton and Thomas B. Jeffery were both in Philadelphia last Saturday to witness the launching of the battleship *Mississippi* at the Cramp yards on the Delaware. The Cramp company has been making quite a lot of bronze work and automobile parts for various makers, and Messrs. Winton and Jeffery took advantage of the opportunity to critically inspect that portion of the immense plant devoted to this work.

The Winton traveling exposition will be sidetracked at Broad and Callowhill streets, Philadelphia, for three days next week, October 8, 9 and 10. As this point is within a stone's throw of "Automobile Row," the prospects of a successful demonstration are excellent.

Satisfactory arrangements have been concluded between the E. R. Thomas Motor Co., of Buffalo, N. Y., and Ezra E. Kirk, formerly of the Kirk Manufacturing Co., Toledo, O., whereby Mr. Kirk will at once assume the position of vice-president and sales manager of the Thomas company. The new factory building which will give the Thomas company needed additional capacity, is nearing completion, and one of Buffalo's oldest and historic buildings is being fitted up by Mr. Thomas to be used as the office of the company.

THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, OCTOBER 19, 1905—CHICAGO No. 16

FRANCE WINS THE VANDERBILT CUP.

THE Vanderbilt Cup stays with France if she will keep it. Hemery in the little Darracq was first over the line at the finish in the second international race for the Vanderbilt Cup held on Long Island, last Saturday, and he was also first in point of elapsed time, having covered the 283 miles in 4:36:08. Heath, last year's victor, came in less than a minute afterward —elapsed time, 4:39:40. When he pulled up his car and learned his position he was about the maddest man on the course, as he had supposed that he was in first place. For awhile there were rumors of a protest flying about, but nothing happened. Meanwhile the crowd about the grandstand, regardless of the other cars on the course, moved out on the road. The officials waved the danger flags, and those who knew that Lancia and Tracy were due in at any moment felt the dread of disaster. At 11:03:31 o'clock Lancia came in sight, moving slowly in response to the danger signals, and through a lane in the crowd crossed the line in 5:00:31 elapsed time, third in point of actual arrival at the tape.

In another minute the cry "Car coming!" was caught up from away down the road, the official bugler sounded his warning, and through what seemed a compact mass of spectators Tracy rushed up in the Locomobile and gave America third place in the elapsed time of 4:58:26—the first time an American car was officially placed in an international race. This gave Lancia, the dashing representative of Italy, fourth place.

Then the persistent crowd grew thicker and thicker on the course, and from the official telephone booth word was sent

HEATH AFTER PASSING ONE OF THE FIATS ON THE BANKED CURVE NEAR LAKEVILLE IN VANDERBILT RACE.

around the course that the race was over.

It was the greatest road race ever held in America, and the equal of many, if not any and all, abroad.

The weather was perfect. In the earlier days of the week rain storms had caused some fears. The rain served to spread the oil on the course, making an almost dustless surface, and the change in the skies on the day of the race to the glorious sunshine of Indian summer made everyone glad.

The start was on time, and every car got away on its minute except the hoodoo Christie, which later was destined to mar the grandest performance of the day.

Elimination began early.

Campbell's Mercedes went out on the second round, when his fuel tank dropped off.

Gradually, as the race progressed, others dropped out, some with marvelous escapes of the occupants, as when Foxhall Keene skidded into a telegraph pole on the Albertson "S" and wrecked his Mercedes. Only a few minutes later Chevrolet repeated the stunt, and also came off without personal injuries to himself or his mechanic.

On the whole, troubles, especially with tires, were not as numerous as had been expected, and, with the exception of Lancia, those who finished experienced little delay. This had the effect of making the speed average of the race remarkably high. The winner's average was 61.49 miles an hour, as against Heath's average of 52.2 miles an hour last year.

But averages are deceptive, as they are figured on the basis of elapsed time. It is more than probable that, figuring on the basis of actual running time, the winner this year did not average as high a rate of speed as last year's winner.

Though only placed fourth, Lancia really carried off the honors of the day. Both car and driver seemed to be close to the ideal. But for an unfortunate mishap, due to no defect in his car, which caused Lancia a delay of three-quarters of an hour, he would have won, and by such a margin that the others would simply have "also ran."

Starting No. 4, he gained the lead in elapsed time in the first round, and held it for seven rounds, gradually gaining on his competitors until he was more than a lap in the lead. His rounds were covered with extraordinary regularity.

Excluding those rounds in which he had tire and other troubles, the greatest time variation in seven laps was 44 seconds. His fastest round was made at the rate of one and two-fifths miles a minute.

On his eighth round, after he had completed repairs at a roadside station, he was in the act of pulling out as Christie passed, and for an instant his rear wheel locked that of Christie. Eye-witnesses declare that Lancia was really at fault—that he had been warned that Christie was coming—but probably he believed he could get away before the American car had passed.

The crowd at the scene was incensed at Lancia, and some talked wildly of assaulting him, as Christie's mechanician had been thrown out on the road and dazed by the concussion. But it all ended peaceably and Lancia resumed his course after repairs—with such a loss of time, however, that, barring accidents to the leaders, he could not win.

Lancia's rate of speed in his fastest lap was 72.88 miles an hour, or considerably faster than the famous lap made by Teste in the Panhard last year, which was at the rate of 70.8 miles an hour.

Among the spectators, and especially those identified with the automobile industry, expressions of the most profound regret were heard on every hand that Lancia's chance for such a splendid record had been marred by a car which the race committee had forced into the contest, regardless of its poor showing in the elimination trials.

Indeed, the performances of the three cars substituted for the winners in the elimination trials came in for severe comment.

The Christie car did not come to the line until twenty minutes after her starting time, and had only completed three rounds when the mishap occurred which put her finally out of the race. Her mean speed figured out only 35.91 miles an hour. The White car did a trifle better, covering four rounds at a mean speed of 36.12 miles an hour. Lyttle's Pope-Toledo covered four rounds also, at a mean speed of 41.72 miles an hour.

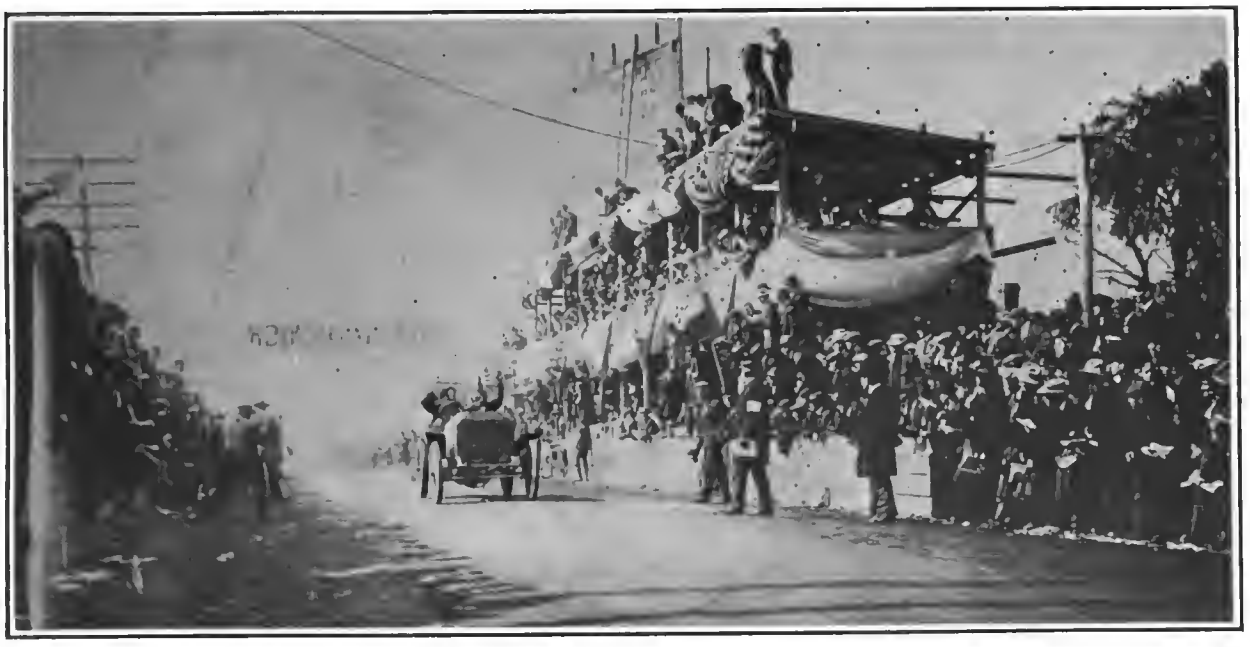
In the elimination trials the Thomas car, which made the slowest time of the three cars that won and were unceremoniously thrown out, and which was delayed by the breaking of the battery box, and consequently imperfect ignition, showed a mean speed of 46.26 miles an hour.

Second only to the remarkable performance of Lancia was the splendid run made by Tracy in the Locomobile, giving America a place, not only ahead of the redoubtable Italian team but of the famed Mercedes cars of Germany.

It was not generally known during the race that only the previous afternoon it had been discovered that one of the "pairs" of cylinders in the Locomobile had been cracked, and the crank case also. Good management had provided spares for just such an emergency, and A. L. Riker, the chief engineer of the builders, took personal charge of the replacements.

A crew of factory experts worked through the entire afternoon and all through the

HEMERY FINISHING IN THE DARRACQ IN FIRST PLACE IN THE VANDERBILT CUP RACE IN 4:36:08.



HEATH LAST YEAR'S WINNER, FINISHING IN SECOND PLACE IN THE BIG PANHARD. ELAPSED TIME, 4:39:40.

night getting the car in condition for running again, knowing that it was a race against the clock to get to the starting line on time.

No one thought of sleep, though the driver and his mechanician were persuaded to get some needed sleep on Friday night. There was not time to tune up the car, however, and Tracy, the driver, and his mechanician, Poole, took it to the line with an untried pair of cylinders and bearings not worked down to a running fit.

From the start, for every foot of the distance, this condition had to be borne in mind, and special care taken of the lubrication. The oil that is mixed with brains was freely used. Steadily and consistently throughout the race Tracy drove the monster car for every mile that was in her up to the critical point where a seized piston or a slide across the road would have put it out, and with it America's chances for a place in the highest class.

It was an exhibition of skill and clear-headed reasoning that gives the driver a right to stand alongside the best of the foreign cracks. There was shown, too, the quality of material and workmanship that can win when the best products of famous foreign shops are lying wrecked along the road.

A close inspection of the car after the race showed it to be in perfect running condition—better, if anything, than before the race began. The tires, which had not been touched during the race, were little marked, and not cut or worn down. The entire outfit seemed in condition to go out and do the whole thing over again.

In winning, the Darracq driver maintained his reputation for daring and that of his car for speed. The machine was probably the lightest in the race, with a high ratio of horsepower to weight and a short wheelbase that suited the corners.

Heath drove well, but gave many observers the impression that he was not trying to get the highest possible out of his car.

LOOKING TOWARD THE FINISH LINE JUST AS TRACY REACHED IT WITH LOCOMOBILE IN THIRD PLACE.

From the enormous attendance at the race, especially of those who came down from the city, it was evident that popular sympathies have been awakened in road racing. This, however, has the disadvantage of making the policing of the course a more serious problem. Except where the course was roped off near the grandstand, at no place was it clear of spectators, who took frightful risks, especially at the turns, apparently without knowing it. And after the first two cars had finished the crowd showed the same disregard of fair play and good sportsmanship as last year, and so deprived those who were still running from getting to the finish line.

The handling of the crowd will be the most serious problem to consider in holding any race in the future.

So far as its powers extended, the work of the race management was splendidly done. Accommodations for the officials were admirable, and the arrangements for the press above all praise, and of a character that the foreign racing authorities might profitably pattern after.

Telephone arrangements were also splendidly effective, and details such as the score board and the frequent announcing of information from the official stand were carried out most thoroughly. The timing staff was also highly efficient, and gave out the returns promptly and apparently with great accuracy.

The following is a list of the officials who were in charge of the arrangements for the race, as well as the management of the great event itself.

The William K. Vanderbilt, Jr., cup race Commission for 1905 consists of the Racing Board of the American Automobile Association, the members of which are as follows: Robert Lee Morrell, chairman; William K. Vanderbilt, Jr., H. L. Bowden, E. R. Thomas, James L. Breese, E. H. R. Green, W C. Temple, T. H. Hilliard, George L. Weiss, R. Lincoln Lippitt, George Isham Scott, F. C. Donald, William Wallace, S. M. Butler, A. L. Riker, E. T. Birdsall, R. H. White and A. G. Batchelder, secretary of the A. A. A.

Referee, William K. Vanderbilt, Jr.; assistant referee, A. R. Pardington.

Judges of start and finish, Elliott C. Lee, Dave Hennen Morris, Alfred Wilmarth and L. R. Speare.

Judges of weighing-in, A. L. Riker, E. T. Birdsall, R. H. White and S. A. Miles.

Timers, the Chronograph Club of Boston and the Timers Club of New York.

Starter, F. J. Wagner. Clerk of the course, F. G. Webb. Assistants to starter and clerk, C. H. Gillette, G. E. Farrington, Emerson Brooks and A. J. Picard.

Judges of turns, members of the Brooklyn Motorcycle Club.

Announcer, Peter Prunty.

Engineer of the course, Lieut.-Com. W. G. Ford, C.E.

Special motorcycle patrol, Brooklyn Motorcycle Club.

Press bureau, Lawrence Abraham, Louis R. Smith and Richard Mann.

Superintendent of grandstand, Alfred Reeves.

Superintendent of telephone system, R. H. Burcher.

Publishers of program, THE AUTOMOBILE, New York.

Record of Individual Performances.

No. 1, Jenatzy (German team), driving 120-horsepower Mercedes entered by Robert Graves. The veteran Belgian driver, winner of the Gordon Bennett cup race in Ireland in 1903 and previous foreign events, got away exactly at 6 o'clock A. M. He was one of the favorites picked for a place winner. Small in stature, with small eyes, yellowish complexion and with scraggly beard, he looked like a Japanese, except that his little beard was red instead of black. His quick, nervous actions and speech, and his extravagant gesticulations, however, dispelled this impression. Notwithstanding his nervous actions, he appeared perfectly confident and at ease with regard to his car and the race, taking his seat deliberately and getting a good start when Starter Wagner gave the word "Go." He made his first round in 24m. 52s. and was first to pass the grandstand after the last car had been started, 6m. 52s. before. He was going at terrific speed. He was also first to finish the second round, going excellently, and had cut down his time for the first circuit by 19 seconds. His third round was more than eight minutes slower than the previous ones and as he passed the stand he waved his right hand to the spectators. It was his last round, however, for at 8.25 A. M. Announcer Prunty reported that Jenatzy had cracked a cylinder at Bull's Head in his fourth round.

No. 2, Duray (French team), driving a 130-horsepower De Dietrich entered by M. De Dietrich. The car was painted light blue and had a long slender bonnet. Duray, stockily built and with a full, youthful face contrasting greatly with Jenatzy's, wore a gray sweater and a red, white and blue toboggan cap as a display of patriotism. He got a poor start but was very self-possessed. He was passed in the first round by Lancia, who started fourth, and was third to cross the tape at the end of the round. He completed seven laps in 3:35:55, having been delayed in the fourth and seventh rounds. His fastest lap was made in 25:29. A tooth broke in the high speed gear near Bull's Head, and Duray continued to run on a lower gear until the broken tooth got into the gearing. It was picked out and the car was run to the end of its eighth round after the race was finished.

No. 3, Dingley (American team), driving the 60-horsepower Pope-Toledo entered by A. L. Pope which the same driver piloted through the Gordon Gennett race in France last July. While his car stood with its front wheels on the tape, ready for the start, the engine puffed from the exhaust tubes rings of thin blue smoke that floated up in front of the press box and expanded to a diameter of several inches. As the car started, Dingley watched the lever segment as he moved up through the progression of speeds. His first round was his fastest—29:44,—and in the third round he had mechanical troubles at Hyde Park. Dingley pluckily went to work to make repairs, losing more than two hours at the job, and then resumed the race, finishing his third round after seven of his opponents had completed

SPECTATORS LINED ALONG FARM LANDS ON THE JERICHO TURNPIKE NEAR THE GRANDSTAND.

LANCIA IN THE FIAT FINISHING IN FOURTH PLACE AFTER HIS REMARKABLE THOUGH UNLUCKY RUN.

their seventh circuit. He was still running when the race was called off, having completed his fifth round at 10:59:20 A. M.

No. 4, Lancia (Italian team), driving 120-horsepower Fiat car entered by Hollander & Tangemann. Lancia was picked by probably a majority of the automobile race followers to win, owing to the remarkable speeds he had made abroad this year in the Ardennes Circuit, the Florio cup race and other international events. The largest man in the Vanderbilt race, fleshy, fair of skin and jovial in disposition, he seemed to have no nerves at all. First to arrive at the start —at 5:25 A. M.,—he was a conspicuous figure in the narrow lane between the two stands as his car spouted bluish yellow flames fully two feet in length from the side of the bonnet. His engine did not emit any smoke whatever, and clearly was in perfect tune, roaring deeply and regularly. He made one of the best starts of the day, moving up through his gears quickly and accelerating with astonishing rapidity. Although he started fourth, three minutes after Jenatzy, he passed the stand second at the end of the first round, having passed both Duray and Dingley and gained more than a minute on Jenatzy. His second, third and fourth circuits were each made in less time than the preceding one, the elapsed time for the fourth being the fastest made by anyone in the entire race—23m. 18s., or at the rate of 72.88 miles an hour. In the third round he passed Jenatzy and was leading the race, both in order of passage and by elapsed time. He had taken the lead by elapsed time in the first round and continued to hold premier position to the end of the seventh round, notwithstanding he stopped at Lakeville to put on two front tires in the fifth round. Each time he passed the stand he was given a rousing cheer, and laughed merrily and waved his hand to the crowd. His stock soared higher with each round and there was a genuine murmur of regret when it was announced that he was stopped by tire trouble. He was 20m. 42s. in the lead at the end of the fourth round. He was delayed more than four minutes on account of the tires. He lost the race in his eighth round by a collision with Christie on the I. W. Willets road, Lancia moving out of a gasoline station just as Christie passed. No one was hurt, but both rear wheels of the Christie car were broken and the damage done to Lancia's Fiat caused him a delay of almost an hour, during which he dropped from first place to sixth position in elapsed time. He tore around the course in the ninth round at a pace that raised him to third place, but had tire trouble in the last lap and finished slowly, stopping on the tape in front of the grandstand, winner of fourth place in the race, but keenly disappointed. He made the finest performance of the day and but for the accident would doubtless have fulfilled all the expectations of his adherents.

No. 5, Keene (German team), driving a 120-horsepower Mercedes entered by himself. An American sportsman competing solely for love of the sport, he was the favorite with the wealthy and fashionable residents of Long Island who are his neighbors. Tall and spare, with black hair and mustache, he is one of the best road drivers in this country. He started in fifth position at 6:04 A. M. and in five rounds moved up to second position and on elapsed time was running third in the race, with an excellent chance of figuring among the place winners. Just at the finish of the second round he was passed in front of the grandstand by Szisz in the Renault. He had no serious trouble until the sixth round, when, in taking the S turn at Willis avenue, he skidded against a telephone pole, throwing his mechanician out but not seriously hurting either, although the car was too much damaged to continue in the race. Keene walked down Willis avenue one mile to the grandstand, where he explained the accident to his friends and was commiserated upon his ill fortune.

No. 6, Wagner (French team), driving 80-horsepower Darracq entered by Darracq & Co. Much was expected of Wagner, as he is one of the best drivers of Europe, having broken the kilometer and mile records and been a consistent performer in many great road races. His car, like Hemery's, seemed well adapted for the course, having moderate power combined with lightness, facilitating sudden stopping and rapid acceleration at turns. His engine carried no hood, and the rock-shafts on top of the cylinders could be seen playing a tattoo on the valve stems as the car waited for the start. At the word, Wagner got away with a jump but accelerated and progressed through his gears smoothly. He made his first two rounds at the rate of more than 68 miles an hour, which was exceeded only by Lancia, Jenatzy and Szisz. His third round was much slower, and in the fourth circuit he had to retire near Albertson, having lost the cover of his speed gear box, which allowed the oil to escape and resulted in one of the bearings seizing.

No. 7, Tracy (American team), driving 90-horsepower Locomobile entered by H. E. Thomas. That Tracy was the popular American favorite was made manifest when he finished his first round and was applauded by the crowd. His first circuit and two others were made at more than a mile a minute for the full distance, and the greatest difference in times between his fastest and slowest was only 5m. 13s., notwithstanding he had to stop at East Norwich in three rounds to wash oil out of his clutch to prevent it slipping. He had no tire trouble whatever. He was easily distinguished in the race by the dull red color of his car and the bright yellow kerchief that was tied about his neck and fluttered in the wind. During the first three rounds he held in eleventh place by elapsed time and then moved up steadily until the finish, when he won third place, although he actually passed the judges' stand fourth. Despite the yellow flags that the clerk of the course and his assistants were waving frantically to slow

COMPLETE TABLE OF TIMES BY ROUNDS FOR THE SECOND WILLIAM K.

Giving Clock Times, Elapsed Times in Progression, Elapsed Times by Rounds, Rates of Speed for Every Round, Positions of Cont for the Four Ca

Starting No.	Country	Car.	Driver	Start, A. M.		1st Round.	Position.	2nd Round.	Position.	3rd Round.	Position.	4th Round.
1	Germany	Mercedes	Jenatzy	6:00	Clock time,	6:24:52		6:49:25		7:22:06		
					Elapsed time in progression,	24:52	2	49:25	3	1:22:06	6	Broke c
					Elapsed time by rounds,	24:52		24:33		32:41		
					Miles per hour,	68.28		69.16		51.95		
2	France	DeDietrich	Duray	6:01	Clock time,	6:27:26		6:57:17		7:22:57		8:08:43
					Elapsed time in progression,	26:26	7	56:17	11	1:21:57	5	2:07:43
					Elapsed time by rounds,	26:26		29:51		25:40		45:46
					Miles per hour,	64.23		56.89		66.16		37.11
3	America	Pope-Toledo	Dingley	6:02	Clock time,	6:31:44		7:02:55		9:44:33		10:23:35
					Elapsed time in progression,	29:44	16	1:00:55	14	3:42:33	17	4:21:35
					Elapsed time by rounds,	29:44		31:11		2:41:38		39:02
					Miles per hour,	57.11		54.45		10.52		43.50
4	Italy	Fiat	Lancia	6:03	Clock time,	6:26:49		6:50:20		7:13:45		7:37:03
					Elapsed time in progression,	23:49	1	47:20	1	1:10:45	1	1:34:03
					Elapsed time by rounds,	23:49		23:31		23:25		23:18
					Miles per hour,	71.30		72.20		72.51		72.88
5	Germany	Mercedes	Keene	6:04	Clock time,	6:31:21		6:58:24 2-5		7:27:05		7:58:10
					Elapsed time in progression,	27:21	8	54:24 2-5	7	1:23:05	9	1:54:10
					Elapsed time by rounds,	27:21		27:03 2-5		28:40 3-5		31:05
					Miles per hour,	62.09		62.78		59.20		54.63
6	France	Darracq	Wagner	6:05	Clock time,	6:29:56		6:54:49		7:35:38		
					Elapsed time in progression,	24:56	4	49:49	4	1:30:38	12	Lost ge
					Elapsed time by rounds,	24:56		24:53		40:49		
					Miles per hour,	68.10		68.24		41.60		
7	America	Locomobile	Tracy	6:06	Clock time,	6:34:14		7:02:51		7:31:27		8:03:38
					Elapsed time in progression,	28:14	11	56:51	12	1:25:27	10	1:57:38
					Elapsed time by rounds,	28:14		28:37		28:36		32:11
					Miles per hour,	60.14		59.34		59.37		52.76
8	Italy	Fiat	Nazzari	6:07	Clock time,	6:32:28		7:25:42		7:51:17		8:15:52
					Elapsed time in progression,	25:28	5	1:18:42	15	1:44:17	13	2:08:52
					Elapsed time by rounds,	25:28		53:14		25:35		24:35
					Miles per hour,	66.68		31.90		66.37		69.07
9	Germany	Mercedes	Warden	6:08	Clock time,	6:35:41		7:03:07		7:30:30		7:57:45
					Elapsed time in progression.	27:41	9	55:07	9	1:22:30	8	1:49:45
					Elapsed time by rounds,	27:41		27:26		27:23		27:15
					Miles per hour,	61.34		61.90		62.01		62.31
10	France	Renault	Szisz	6:09	Clock time,	6:33:55		6:58:24 1-5		7:23:45		8:02:27
					Elapsed time in progression,	24:55	3	49:24 1-5	2	1:14:45	2	1:53:27
					Elapsed time by rounds,	24:55		24:29 1-5		25:20 2-5		38:42
					Miles per hour,	68.15		69.26		66.99		43.88
11	America	Christie	Christie	6:10*	Clock time,	7:08:08		7:38:20		8:54:30		
					Elapsed time in progression,	58:08	18	1:28:20	15	2:44:30	16	Started
					Elapsed time by rounds,	58:08		30:12		1:16:10		
					Miles per hour,	20.21		56.22		22.29		
12	Italy	Fiat	Cedrino	6:11	Clock time,	6:36:36		7:04:54				
					Elapsed time in progression,	25:36	6	53:54	5	Retired on Willets road.		
					Elapsed time by rounds,	25:36		28:18				
					Miles per hour,	66.23		60.00				
X	Germany	Mercedes	Campbell	6:12	Clock time,	6:40:21						
					Elapsed time in progression,	28:21	12	Lost gasoline tank off car.				
					Elapsed time by rounds,	28:21						
					Miles per hour,	59.90						
14	France	Panhard	Heath	6:13	Clock time,	6:41:02		7:08:03		7:34:56		8:01:51
					Elapsed time in progression,	28:02	10	55:03	8	1:21:56	4	1:48:51
					Elapsed time by rounds,	28:02		27:01		26:53		26:55
					Miles per hour,	60.57		62.85		63.16		63.08
15	America	Pope-Toledo	Lyttle	6:14	Clock time,	6:43:15		8:14:17		8:49:49		9:29:52
					Elapsed time in progression,	29:15	15	2:00:17	18	2:35:49	15	3:15:52
					Elapsed time by rounds,	29:15		1:31:02		35:32		40:03
					Miles per hour,	58.05		18.65		47.79		42.40
16	Italy	Fiat	Chevrolet	6:15	Clock time,	6:43:42		7:11:57		7:43:32		8:22:25
					Elapsed time in progression,	28:42	14	56:57	13	1:28:32	11	2:07:25
					Elapsed time by rounds,	28:42		28:15		31:35		38:53
					Miles per hour,	59.16		60.11		53.77		43.67
18	France	Darracq	Hemery	6:16	Clock time,	6:44:23		7:10:24		7:36:20		8:14:38
					Elapsed time in progression,	28:23	13	54:24	6	1:20:20	3	1:58:38
					Elapsed time by rounds,	28:23		26:01		25:56		38:18
					Miles per hour,	59.84		65.27		65.48		44.33
19	America	White	White	6:17	Clock time,	7:08:31		7:53:23		8:35:54		9:26:14
					Elapsed time in progression,	51:31	17	1:36:23	17	2:18:54	14	3:09:14
					Elapsed time by rounds,	51:31		44:52		42:31		50:20
					Miles per hour,	32.07		37.84		39.03		33.74
20	Italy	Fiat	Sartori	6:18	Clock time,	6:45:41		7:13:11		7:40:20		8:07:53
					Elapsed time in progression,	27:41	9	55:11	10	1:22:20	7	1:49:53
					Elapsed time by rounds,	27:41		27:30		27:09		27:33
					Miles per hour,	61.34		61.75		62.54		61.46

Letter X was substituted for 13 as the starting number for Campbell, owing to superstitious dread. No. 17 (Basle) is omitted from the table because it did
* No. 11 (Christie) made a flying start at 6.38 o'clock A. M., just 28 minutes late His times and rate of speed are figured on his official starting time—6.10
The positions indicated numerically at the end of each round indicate the po i ons of the contestants in the race by elapsed times, and not their order of

VANDERBILT, JR., CUP RACE, RUN ON LONG ISLAND OCTOBER 14, 1905.

estants by Elapsed Times at End of Each Round, and Average Times Per Round and Average Rate of Speed Throughout the Race rs that Finished.

Position.	5th Round.	Position.	6th Round.	Position.	7th Round.	Position.	8th Round.	Position.	9th Round.	Position.	10th Round.	Averages	Position at Finish.	Starting No.
ylinder at Bull's Head in fourth round.														1
10	8:34:12 2:33:12 25:29 66.63	9	9:00:27 2:59:27 26:15 64.69	6	9:36:55 3:35:55 36:28 46.56	7	Running when race was called off.							2
14	10:59:20 4:57:20 35:45 47.50	12	Broke cylinder at Hyde Park in third round, made repairs and was running when race was stopped.											3
1	8:05:05 2:02:05 28:02 60.57	1	8:28:50 2:25:50 23:45 71.50	1	8:52:52 2 49:52 24:02 70.65	1	10:04:09 4:01:09 1:11:17 23.82	6	10:28:00 4:25:00 23:51 71.20	3	11:03:31 5:00:31 35:31 47.81	Time per round, 30:03 Miles per hour, 56.50	Fourth	4
6	8:24:33 2:20:33 26:23 64.36	3	Ran into telephone pole at Willis Avenue and broke wheel; nobody hurt.											5
ar box cover, bearings seized; retired near Willis Avenue.														6
7	8:31:18 2:25:18 27:40 61.38	7	9:04:11 2:58:11 32:53 51.64	5	9:32:04 3:26:04 27:53 60.90	5	10:02:56 3:56:56 30:52 55.01	5	10:34:53 4:28:53 31:57 53.14	4	11:04:26 4:58:26 29:33 57.46	Time per round, 29:50 Miles per hour, 56.90	Third	7
11	8:44:56 2:37:56 29:04 58.42	10	9:11:03 3:04:03 26:07 65.02	8	9:35:40 3:28:40 24:37 68.98	6	10:00:20 3:53:20 24:40 68.84	3	Running when race was called off.					8
3	8:33:46 2:25:46 36:01 47.15	8	9:13:19 3:05:19 39:33 42.89	9	10:19:18 4:11:18 1:05:59 25.74	9	10:59:23 4:51:23 40:05 42.36	8	Had tire trouble; running when race was stopped.					9
5	8:31:45 2:22:45 29:18 57.95	5	9:05:09 2:56:09 33:24 50.83	4	9:33:46 3:24:46 28:37 59.34	4	10:02:41 3:53:41 28:55 58.65	4	10:43:07 4:34:07 40:26 42.00	5	Running when race was stopped.			10
twenty-eigbt minutes late; had tire trouble; collided with Lancia at repair station on Willet's Road and broke both rear wheels.														11
near old church, west of Albertson S curve with disabled engine.														12
														X
2	8:28:21 2:15:21 26:30 64.07	2	8:54:54 2:41:54 26:33 63.95	2	9:23:59 3:10:59 29:05 58.38	2	9:57:31 3:44:31 33:32 50.62	2	10:24:41 4:11:41 27:10 62.50	2	10:52:40 4:39:40 27:59 60.68	Time per round, 27:58 Miles per hour, 60.72	Second	14
13	Ran into fence east of Lakeville; in fifth round.													15
9	8:53:41 2:38:41 31:16 54.31	11	9:24:25 3:09:25 30:44 55.25	10	Ran into telegraph pole at Willis Avenue in seventh round; front wheel broken and front axle badly bent.									16
8	8:39:27 2:23:27 24:49 68.42	6	9:04:55 2:48:55 25:28 66.68	3	9:30:20 3:14:20 25:25 66.81	3	9:55:59 3:39:59 25:39 66.20	1	10:24:33 4:08:33 28:34 59.44	1	10:52:08 4:36:08 27:35 61.56	Time per round, 27:36 Miles per hour, 61.49	First	18
12	Abandoned car at Lake Success, in fifth round, after tire and engine troubles.													19
4	8:39:06 2:21:06 31:13 54.40	4	9:20:38 3:02:38 41:32 40.87	7	10:14:27 3:56:27 53:49 31.54	8	10:52:10 4:34:10 37:43 45.00	7	Broke crankshaft between Jericho and East Norwich in ninth round.					20

not start.
A.M. Therefore, his first round was actually made in 30m. 8s., and his actual rate of speed is much bigher than that given.
passing tbe judges' stand.

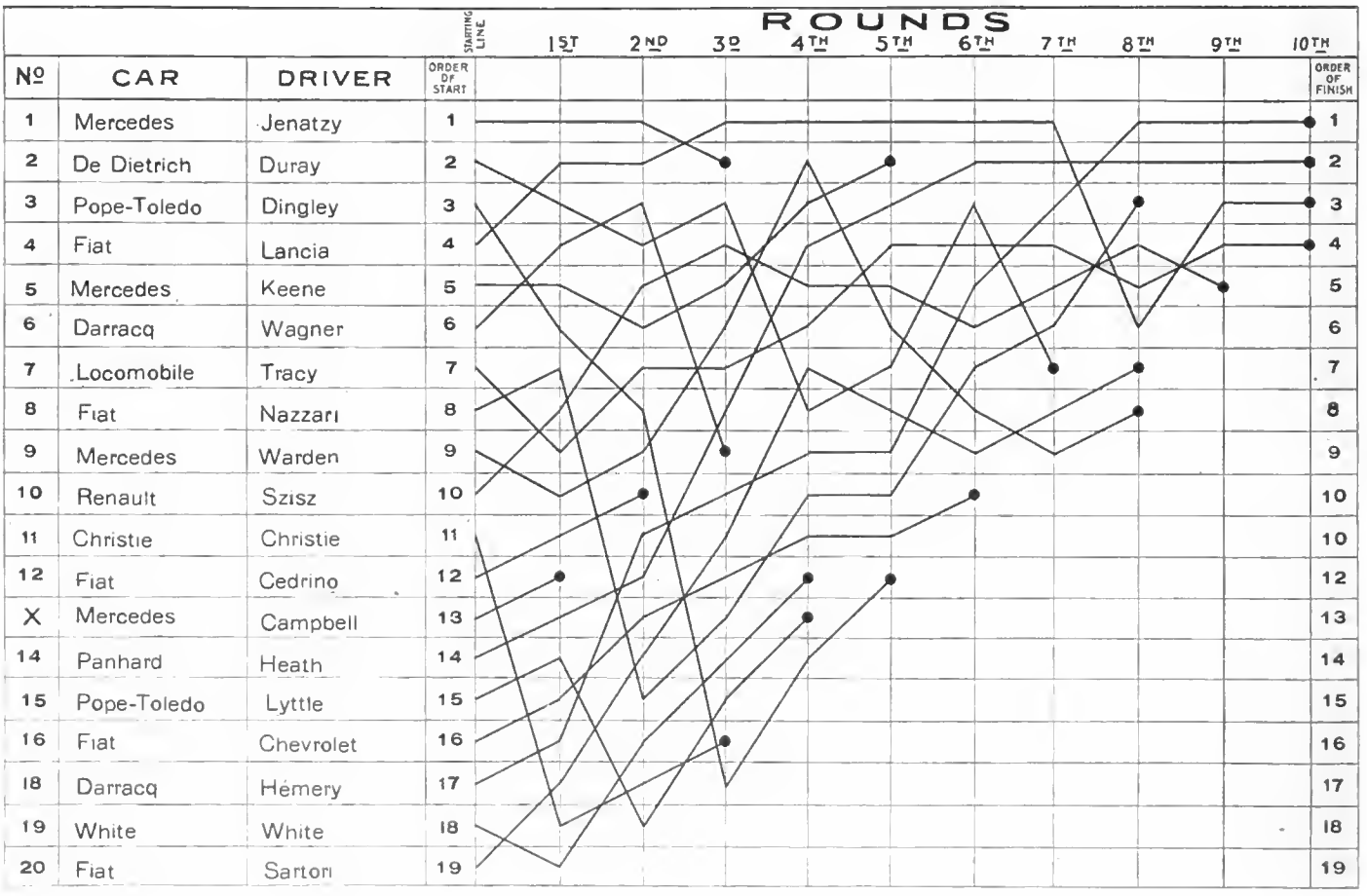
him down and stop the race, Tracy finished strong, shutting off his engine and applying the brakes right on the tape. His total elapsed time was 4h. 58m. 26s. for the 283 miles. His performance for the first time puts America among the place winners in an International automobile contest.

No. 8, Nazzarl (Italian team), driving 120-horsepower Fiat entered by Hollander & Tangemann. This driver, who captured sixth place in the last big race of the year in Europe—the Florio Cup race—presented a trim, clean-cut figure as he waited for the start. The third cylinder of his car seemed to be firing intermittently before the throttle was opened for the get-away. When he had moved two rods from the tape and was opposite the lower end of the stands, Nazzari threw up both hands above his head in a parting salute to the multitude. Even then the car was moving at a fast rate. Nazzari completed his first round in 25:28, but occupied 53:14 for the second, and when he passed the stand the second time he pointed down at his rear right tire, evidently to indicate that that was the occasion for his delay. All of his successive rounds were made under half a minute, although he stopped at Hyde Park a few minutes in his fifth round, and he finished his eighth circuit at 10 o'clock and 20 seconds. He was still going when the race was stopped.

No. 9, Warden (German team), driving 120-horsepower Mercedes entered by himself. Although an American, Warden is almost an unknown figure in racing. He is small of stature, rather spare, and has red hair and a smooth but freckled face. Friday afternoon he had drawn off a bucket of water from his crankcase, said to have leaked in through a cracked cylinder. He made a good start, and covered the first four rounds in less than 28 minutes each, making every successive circuit in faster time than the previous one, and finishing the fourth round second to Lancia. Then he began having trouble with his tires, being reported at the 20-mile post with a flat tire and in tire trouble at Lakeville in one round, and passing the grandstand with his right rear tire off after Hemery and Heath had both finished the race. He was still running when the race was called off at 11:05 A.M.

No. 10, Szisz (French team), driving 90-horsepower Renault entered by Renault Frères. This Swiss driver was another of the foreigners picked by the knowing ones for a probable place among the first three or four finishers. His car was one of the most distinctive in the race, having a long inverted boat-shaped body pointed to split the wind and painted a brilliant red, while a horseshoe-shaped fin radiator encircled it with a black band about midway of its length. Szisz himself is a small man, and as he sat low in the car his body was almost concealed from sight. He got a slow start, but made a number of fast circuits, his second in 24:29 1-5 being the fastest of the nine that he completed. He finished his ninth round just nine minutes before Hemery crossed the tape, winner of the race. As he passed the stand at the end of the seventh round his car was swerving rather

DIAGRAM SHOWING POSITIONS OF CONTESTANTS AT END OF EACH ROUND IN THE ORDER OF THEIR PASSAGE AT THE TAPE.

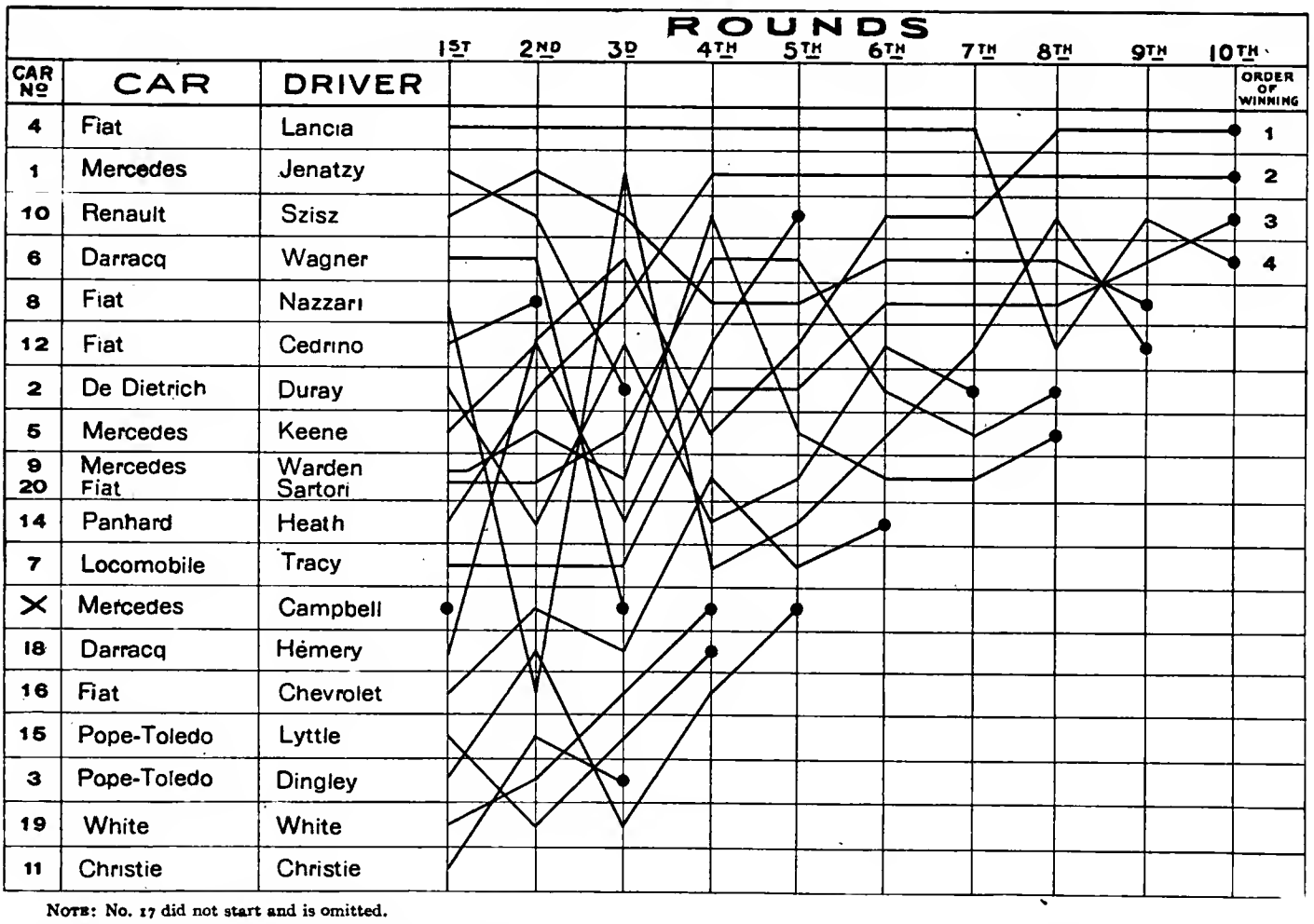


No.	CAR	DRIVER	ORDER OF START	ORDER OF FINISH
1	Mercedes	Jenatzy	1	1
2	De Dietrich	Duray	2	2
3	Pope-Toledo	Dingley	3	3
4	Fiat	Lancia	4	4
5	Mercedes	Keene	5	5
6	Darracq	Wagner	6	6
7	Locomobile	Tracy	7	7
8	Fiat	Nazzari	8	8
9	Mercedes	Warden	9	9
10	Renault	Szisz	10	10
11	Christie	Christie	11	10
12	Fiat	Cedrino	12	12
X	Mercedes	Campbell	13	13
14	Panhard	Heath	14	14
15	Pope-Toledo	Lyttle	15	15
16	Fiat	Chevrolet	16	16
18	Darracq	Hemery	17	17
19	White	White	18	18
20	Fiat	Sartori	19	19

NOTE: No. 17 did not start and is omitted.

EXPLANATION: The lines in the above diagram have no relation to time. They indicate merely the progress of the cars through the race in the changing order of their passage at the tape. In every case the lines should be followed straight from one vertical to the next, as there is no change of direction between the beginning and end of the rounds. The contestants' names appear in the order in which they started, at one-minute intervals. The irregular heavy lines beginning opposite the respective names cross the verticals midway of the left-to-right spaces, successively from 1 to 19. Where the lines cross one another diagonally indicates when the men changed positions, but not *where* they passed on the course. The black dots at the ends of the lines indicate the last recorded passage of the cars at the tape.

DIAGRAM SHOWING POSITIONS OF CONTESTANTS AT END OF EACH ROUND PLOTTED FROM OFFICIAL ELAPSED TIMES.



NOTE: No. 17 did not start and is omitted.

EXPLANATION: The lines in this diagram have relation only to time and have nothing to do with numerical starting position or order of passage. Figured on elapsed times all contestants are assumed to start together; therefore, as they can have no relative positions until the first round is completed, the names of the contestants are arranged in the order of their positions by elapsed time at the end of the first round. It will be noted that Warden and Sartori appear together in one space. This is due to the fact that both ran the first lap in the same time and were tied. The same applies to Keene and Hemery at the end of the second round. Campbell made only one round, at the end of which he was in twelfth place, and consequently is not represented by a line.

badly, and he finished each of the next two rounds going slowly and with one or two of the cylinders missing. He was the hero of one of the most spectacular features of the race when, at the end of the second round, he passed Keene just at the tape, crowding through on the left so close to the fence that an accident looked probable. Keene refused to pull over to the right to make room for Szisz to pass. The Swiss finished his third and fourth rounds going very fast. He was still running when the race was stopped.

No. 11, Christie (American team), driving 60-horsepower Christie entered by J. L. Breese. This is the direct front-drive car designed and built by its owner which has figured so frequently in the programs of road and track races, but has so seldom come to the start on time. As usual, it was absent when its starting time came, and did not make its appearance until 6:38 o'clock, when it passed the stand at speed from the direction of Hyde Park and was given a flying start, twenty-eight minutes late. It ran two rounds in about half an hour each, going very badly at the finish of the second round, the engine missing explosions and the car jumping about dangerously. Christie had trouble with the tires in the third round, which delayed him forty minutes, and in his fourth round collided with Lancia at Lakeville, breaking both rear wheels of the Christie car. Christie's mechanician was thrown out and stunned, but not seriously hurt.

No. 12, Cedrino (Italian team), driving 90-horsepower Fiat entered by Hollander & Tangemann. While waiting for the start, Cedrino toyed with the spark and throttle levers while his mechanician lazily worked the handle of the fuel pressure hand pump. They got away well at 6:12 A.M., and made two rounds, the first in 25:36. They stopped at Bull's Head in the third round with a broken oil pipe, and were unable to make repairs. They went on again, but did not finish the circuit. After the race was over the car was seen standing on the grass by the roadside beyond the Willis avenue turn, where preparations were being made to tow it to the Fiat headquarters.

No. X (13), Campbell (German team), driving 120-horsepower Mercedes entered by S. B. Stevens. It will be remembered that Campbell drove in last year's Vanderbilt Cup race. Otherwise, except for an appearance at some of the New Jersey beach races this summer, he is an unfamiliar figure in racing. By a second drawing of starting numbers made by the German team upon Foxhall Keene's refusal to take the number left him after the first selection of starting numbers, Campbell drew the number to which so much superstition attaches. This superstition will not be diminished by the fact that Campbell completed only one round—the least of all the starters. At the start he created a good impression, waiting calmly in his seat with his hands off the steering wheel and levers until Starter Wagner began shouting off the remaining seconds in his ear. The driver is tall and spare. He made a good start, and moved up through his speeds without a balk. Misfortune overtook him in the first round, when his gasoline tank came off and put him out of the race.

No. 14, Heath (French team), driving 120-horsepower Panhard entered by Panhard & Levassor. Owing to his clean victory in last year's Vanderbilt Cup race and his American nativity, Heath was a popular favorite, although he was not touted for a winner, most persons evidently thinking him too cautious. He repeated the driving tactics that were so noticeable in last year's event, waving his hand as he passed his box in the grandstand on each round, leaning well back in his seat and apparently refraining from pushing his machine to its limit. He got away well and reduced his running time in both the second and third rounds. At the end of the fourth round he had gained second position to Lancia by elapsed time, and he continued to hold this place in the race to the finish. He was going very fast each time as he passed the stand, but in at least two rounds he made stops, one of them out of pure sportsmanship and humanity. He was the first driver to pass the Willis avenue turn after Keene ran into the telephone pole there, and he stopped to see if he could give any assistance. In the fourth round he passed Hemery, the winner. and evidently did not notice that Hemery repassed him in the eighth round when Heath stopped, and went into first place. Heath finished only 32 seconds after Hemery, but by elapsed time lost the race by 3 minutes 32 seconds, and was keenly disappointed.

No. 15, Lyttle (American team), driving 90-horsepower Pope-Toledo, entered by Col. A. A. Pope. Although Lyttle made the best showing on the American team in the last Vanderbilt cup race, he appeared to have less of the interested sympathy of the spectators this year than his team mate, Dingley, who won the elimination race over this same course on September 23 last. But he was cheered as he got away in his proper place with a jumping start and a hoodless body exposing the only six-cylinder engine in the contest. His car seemed to be swerving considerably at the end of the first round, which was the fastest it made—20 m. 15 s. During its second round, on which there was a delay of an hour, Lyttle's mechanician, Jack Tattersall, was reported to have been thrown out of the car by a collision with a telephone pole at Lakeville and severely injured; the rumor even gained currency that he had been killed. Later these rumors were put at rest by the announcement that the mechanician was not hurt, a report that was anticipated by the passage of the car at the end of its second lap with two men in it. The machine was not going well, however. It was finally put out of the race in the fifth round, when, about half an hour before the end of the race, Lyttle lost control of the steering approaching Lakeville and the car ran up a bank and through a fence, bending the front axle, breaking the commutator and tearing both front tires. Neither the driver nor his assistant was injured. In one of the previous laps the car hit a dog at Krug's, on the Jericho Turnpike an eighth of a mile beyond the grandstand, and mangled the body badly.

No. 16, Chevrolet (Italian team), driving 90-horsepower Fiat, entered by Hollander & Tangeman, and owned by C. J. Miller. Americans are well acquainted with this driver through his performances on the race tracks about New York during the past two seasons. He has an extensive chapter of accidents in his racing career, and this was increased in last Saturday's contest. He completed six rounds at an average elapsed time for each of about thirty minutes, but in the seventh

ANALYTIC SUMMARY OF THE 1905 VANDERBILT CUP RACE.

Total distance covered from start to finish (no controls), 283 miles.

Length of course (covered ten times), 28.3 miles.

Total elapsed time of winner, Hemery, 4 h. 36 m. 8 s.

Total elapsed time of second place winner, Heath, 4 h. 39 m. 40 s.

Total elapsed time of third place winner, Tracy, 4 h. 58 m. 26 s.

Hemery won by 3 m. 32 s.

Hemery's average speed per hour for total elapsed time, 61.49 miles.

Heath's average speed per hour for total elapsed time, 60.72 miles.

Tracy's average speed per hour for total elapsed time, 56.90 miles.

Fastest round made in the race was by Lancia, in the fourth round, 23 m. 18 s.

Fastest round made by any other driver was by Jenatzy, in second, 24:33.

Fastest round made by a French car was Hemery's fifth round, in 24:49.

Fastest round made by an American car was Tracy's fifth round, in 27:40.

Lancia's rate of speed in miles per hour in fastest lap, 72.88.

Hemery's rate of speed in miles per hour in his fastest lap, 68.42.

Heath's rate of speed in miles per hour in his fastest lap, 64.07.

Tracy's rate of speed in miles per hour in his fastest lap, 61.38.

Rate of speed in miles per minute in Lancia's fastest round, 1.4.

Rate of speed in feet per second in Lancia's fastest round, 106.8.

Most uniform performance throughout race was made by Hemery, the greatest variation in his rounds being 3m. 29s.

Greatest variation in Tracy's rounds, 5m. 13s.

Lancia held first place by elapsed time up to end of seventh round, when collision with Christie caused him more than three-quarters of an hour delay.

At the end of his sixth round Lancia was 26 m. 4 s. ahead of the nearest competitor, Keene, having gained more than a full lap on the entire field.

Excluding three rounds in which he had tire trouble and collided with Christie, the greatest time variation in Lancia's remaining seven laps was 44 seconds.

Heath was 9m. 47 s. ahead of Hemery at the end of the fourth round.

Lancia made four consecutive rounds (113. 2 miles) at the average rate of 72.22 miles an hour.

Keene was in third place when he ran into telephone pole in his sixth round.

Keene's fastest round, the fifth, was made at the rate in miles per hour of 64.36.

Nazzari was in third place at the end of the eighth round.

All three American "substituted" cars were down and out of the race before the race was half finished.

Cars that finished or were still running when the race was called off: Darracq (Hemery), Panhard (Heath), Locomobile (Tracy), Fiat (Lancia), Pope-Toledo (Dingley,) Mercedes (Warden), Renault (Szisz), De Dietrich (Duray), Fiat (Nazzari).

Countries represented by place winners and their order: France, first and second; America, third; Italy, fourth.

Cars that were out of the race when it was called off: Mercedes (Jenatzy); Mercedes (Keene); Darracq (Wagner); Christie (Christie); Fiat (Cedrino); Mercedes (Campbell); Pope-Toledo (Lyttle); Fiat (Chevrolet); White (White); Fiat (Sartori).

Cars representing different nations that had finished or were still running when race was stopped: France, 4; United States, 2; Italy, 2; Germany, 1.

Cars representing different nations that were out of the race when it was called off: France, 1; United States, 3; Italy, 3; Germany, 3.

SCALE MAP OF THE LONG ISLAND COURSE OVER WHICH THE VANDERBILT RACE WAS HELD, OCTOBER 14.

Drawn by our own Cartographer from U. S. Maps and other accurate data.

skidded against a pole at the Willis avenue turn and crushed the front wheel, bent the axle badly, but did not break it, as reported by the announcer.

No. 17, Basle (German team), driving a 90-horsepower Mercedes, entered by H. L. Bowden as a substitute for 120-horsepower Mercedes, entered by Clarence G. Dinsmore, which was delayed in shipment. Did not start, owing to American parts being used in various repairs to the machine.

No. 18, Hemery (French team), driving 80-horsepower Darracq, entered by Darracq & Co. Hemery's long succession of victories abroad and the suitability of his machine (a duplicate of Wagner's) for the nature of the course caused his chances of winning the race to be rated as second only to Lancia's by a large number of well-informed persons. He drove a remarkably uniform race, running all but one of his ten laps in less than twenty-nine minutes each. His fifth round was his fastest, made in 24:49. At the end of the first round he had thirteenth place by elapsed time, at the end of the third was in fourth place, and in the eighth round took first place when Lancia collided with Christie and held first place to the end of the race, winning in 4 h. 36 m. 8 s. In the fifth round he lost his goggles in front of the grandstand. Finishing the ninth round Hemery was leading Heath by 500 feet, and when he passed on the final round he was loudly cheered as victor.

No. 19, White (American team), driving 40-horsepower White steam racing car entered by Rolin H. White. Walter White's small figure appeared out of all proportion to the size of his huge machine with its long wheelbase. He took particular pains to

make a slow start and refrain from causing any such breakage as occurred in the elimination race. Nevertheless, the car had trouble throughout the four rounds that it ran. It consumed 51 m. 31 s. on the first round, being reported with a flat tire at the five-mile post, and again in the third round at Willis avenue. During the same round White drove his car into the barn at the White headquarters at Bull's Head to make some repairs, and in the fifth round he got as far as the entrance to the Vanderbilt estate, at Lake Success, with his left front tire gone and evident mechanical troubles, and here he abandoned the race.

No. 20, Sartori (Italian team), driving 90-horsepower Fiat entered by Alfred G. Vanderbilt. Sartori had better fortune this year than last, when he started nearly two hours late and made only one round. He started on time last Saturday and completed eight rounds and was still running when Hemery finished his last round. But subseqently, in his ninth round, he broke his crankshaft and had to be towed home. He ran his first four rounds in excellent time, the slowest being 27:41 and the fastest 27:09. He completed his eighth round just two seconds after Hemery crossed the tape winner of the race.

From Dawn Until Noon at the Tape.

BY the commonplace figures of the calendar, the second Vanderbilt Cup race was run on October 14, but this is a mere fiction. The fact is that on Long Island, at least, there will be found but 364 days in this year, and the race was run on the longest of them—the forty-eight hours between Thursday and Sunday. During this time all the ordinary boundaries of nature and custom between successive days were obliterated; the early October sunset passed almost unnoticed as a full moon flooded the world with light; the dawn that followed was but the gradual eclipse of one brilliant luminary by another of more intense power; the common avocations of life, that ordinarily quiet down toward the end of the day, in this case quickened hour by hour as the night advanced into a wild hurly-burly of noise and motion such as only some extraordinary event can call forth. Many, either through inclination or necessity, made no effort to obtain the rest and sleep that night commonly brings, and those who wooed them found the words but abstract terms, devoid of meaning for the time being.

In the important matter of meals a breach was made in all conventions and proprieties; no one knew or cared whether the food served between 11 P.M. and 4 A.M. was a late supper or an early breakfast.

If one could have viewed the scene as the birds saw it, from a great height, the whole western end of Long Island would have suggested an ant hill under stress of some unusual commotion, but with color effects not known to nature. Bugs of brilliant colors—red, blue, green and yellow, with edgings of burnished brass—would be seen hurrying at wonderful speed in all directions, one dense stream in particular from the west, with smaller ones also eastbound to the south of it.

As the day declined the number of these insects increased, and each became a lightning bug; under the moonlight the movements became more and more erratic, the converging lines from all directions being cut by circles until there was one immense spider's web of moving lights. About 3 o'clock in the morning this wild whirl took a new form; while many of the lights became fixed, marking the irregular outlines of a terrestrial constellation not unlike the Dipper, others hurried on at still higher speed, all converging toward a common center—the starting line of the Vanderbilt Cup course.

The appeal to the ear was quite as novel and characteristic as that to the eye—a veritable Babel of all modern languages, leavened by the characteristic *argot* of motoring, by songs and laughter, sounds of quarreling, the harsh bark and squeak of cheap or ill-used engines, the rhythmic chug-chug of the better class of touring cars, and later in increasing numbers the wild pant and roar of the impatient racers, hungering like unfed beasts to devour the 300 miles of green country road, savored with oil and dust and gasoline, that were spread before them.

If there was any brief pause in the crescendo of motion and noise, it was shortly after midnight, when those who were fortunate enough to have beds made a pretense of occupying them; but before 3 o'clock the turmoil was under way again in full swing.

Considering the severe cold of Thursday, the weather was remarkable; the night was warm enough for summer, with only the chill that always precedes the dawn. Four in the morning was, for the time, the fashionable breakfast hour, and few were late; even before this all roads were alive with cars, bicycles and persons on foot. While many had selected the more dangerous turns as the most desirable viewpoints, the great majority of pilgrims were headed for the hill within half a mile of Mineola, where the start and finish were made.

Though lacking two hours of the calendar sunrise, four minutes past six, the moonlight made progress easy, except for the blinding flashes of the search-lights. On each side of the high roadway bridge over the railroad at Mineola lay a large touring car with front and headlights smashed, the two having been in collision on the bridge during the night. A party bound from Garden City to the grandstand stopped and took the cushions and other stuff from one car, and a stout man gazed at it sadly and apostrophized: "Well, old fellow, you don't know what a —— of a time we all had yesterday."

At no time during the past six weeks would anyone pick Krug's Corner as the abode of the simple life, but even at this storm center of the cup course the disturbance was quickening. Duray was busy with the blue De Dietrich, and the volatile Szisz was tuning up his big red bug; newspaper men, photographers, mechanics and spectators crowded both crossroads between the thickly packed cars.

Even Broadway at its busiest, night or day, could hardly equal the half-mile of road between Krug's and the starting line at 5 o'clock; the space between the temporary fences erected to guard the parking spaces on each side was jammed with a solid mass of vehicles and people. It would have been bad enough if all the cars had been headed one way, but they were almost equally divided, pair after pair with lamps locked.

Along the road and in the field at each side were pedlers and fakirs of all descriptions crying their wares—programs, time cards, frankfurters, parking spaces, souvenirs, hot coffee. Groups of men were still lying or sitting about fires built from farmers' fences for cheer and comfort during the early night. There were as yet no signs of dawn, and as the moon declined in the clear blue sky it was, for a time, darker than at midnight.

With all the hurry and push and noise and confusion, the crowd was a good-natured one; there were quarrels here and there as one car or another sought to force its way out of the jam, but nearly everyone was out for fun and disinclined to take offense.

By 5:30 A.M., when it was light enough to read a paper, the first of the racing cars came up, running to the west of the line, some of the drivers, like Heath and Lancia, taking their temporary places in front of parking spaces reserved by their friends or agents. As the more distant parts of the road in each direction became visible it was seen that the press of cars and people was as dense as about the grandstand.

The various course officials, marked by brassards of different colors, ran about pleading, storming, pushing and pulling, in wild and futile efforts to clear the course. Finally a big telegraph pole was drawn by horses across the road a quarter of a mile west, barring all cars, and those within the boundary were gradually forced out of the road.

The grandstand on the south side of the line had meanwhile filled with ladies in furs and rich costumes, while on the opposite side in the press stand were the judges, telephone men, reporters and photographers. In the fields back of the grandstand were several tents, two fitted up by the Automobile Club of America for refreshments. Just west of the press stand was the two-

story stand of THE AUTOMOBILE, and adjoining it on the west was a second grandstand, erected by some speculator.

Between the two board fences which formed the inner fronts of the grandstand and press stand was a width of little over thirty feet, through which each car had to pass, the road in approaching and leaving being but little wider. This narrow space was at no time clear of officials, reporters, photographers and outside spectators, making a mere lane.

The approach was visible for about half a mile, the cars first appearing over the crown of a hill, then rushing down, and up a second rise about a quarter of a mile long to the short level in front of the stands, beyond which they found a down grade for some distance. At 5:45 o'clock this road as far as it was visible was packed from fence to fence with people, with here and there an official wildly waving a red or yellow flag to scare them off.

Though a mere side show to the great event, the costumes offered a rich field of study to those who are interested in such things; every variety of fur and skin coat was seen on men and women, and society, headed by Mrs. W. K. Vanderbilt, Jr., and the Duchess of Marlborough, was there quite as much to be seen as to see.

The honors in dress, however, were gathered in by Chicago in the person of the official starter. Coat, breeches, leggings and cap of bright ox-blood leather, shining with newness, all set off by a bright green stock tie to match the green brassard—nothing neater than this has ever been seen in slow old New York.

Apart from the habitual nervousness of Jenatzy, neither drivers nor mechanicians exhibited any special emotion during the last quarter of an hour. Heath alighted from his car, stretched his legs, and chatted quietly and unconcernedly with Mr. Massenat and a few other friends. Lancia deliberately looked over his car and gave a few directions to his mechanician, besides exchanging greetings with friends. Tracy and his mechanician, Poole, were cool and ready after the hard, trying work of the previous day and night.

Joseph Tracy, driver. *A. L. Riker, designer.* *Al. Poole, mechanician.*

THE MEN WHO PLACED AN AMERICAN CAR (LOCOMOBILE, NO. 7) IN THE FRONT RANK IN AN INTERNATIONAL RACE.

When Jenatzy's car was pushed up to the tape a few minutes before 6 o'clock it seemed impossible that a car could be started, but by degrees a clear way was made down the road. At the last minute Mr. Vanderbilt and Mr. Graves, on the right of the car with other officials, shook hands with the little Belgian, and. as there was no chance for a voice to be heard amid the roar of the cars, the starter, Wagner, standing close to Jenatzy's right ear, began his count: "Ten! nine! eight! seven! six! five! four! three! two!—go!"

The car took life on the word and started at good speed, while the big blue De Dietrich was wheeled up to its place. The jovial blond face of Duray was surmounted by a red, white and blue toque pulled well down to his goggles. Mr. Vanderbilt shook hands with him, and he sat immovable as the minute ran out.

The starter opened and closed his mouth, his right arm beat time vigorously, and he swayed his body with each count like the coxswain of an eight-oar, but his voice was inaudible a few feet away.

There was no mistaking the earnest pantomime, however, and with the tenth stroke the car shot away.

There was some delay in wheeling No. 3, the smaller Pope-Toledo, to the tape; Dingley, big and shock-headed with dark hair, had a duplicate in his mechanician, both clothed in brown khaki. A cheer went up from their friends as they took their places, the starter again began his motions, and off they went.

Now came the star of the performance, the Caruso of motor-car racing, announced by a salute of sound and flame from the exhaust pipes of the big Fiat as she was pushed forward by willing hands. Lancia sat at the wheel, his broad shoulders within a tightly fitting knit jacket of gray, with brass buttons—cool, self-possessed and eager.

A perfect inferno of flame, smoke and noise bombarded the spectators on the left of the car, only a couple of yards distant from the exhaust. But here was the only chance to see at close quarters what was well worth seeing. With the last sway of the starter's body, the car was pushed from behind, and at the same moment the clutch was thrown in and she sprang forward with a leap down the incline.

Applause from his many friends in the boxes greeted Mr. Keene as No. 5 came to the tape promptly in the Italian's wake. He sat quiet and immovable until the last motion, and then went away quickly.

The official starter gave up his place to a substitute, his voice evidently being ex-

HEMERY AT THE WHEEL OF HIS WINNING DARRACQ AND HIS MECHANICIAN BESIDE HIM.

1 had passed Hyde Park, less than 1 1-2 miles to the west, then came a similar announcement for No. 4. The fact that Lancia was rapidly overtaking Jenatzy sent a thrill of excitement down the line, and every eye was fixed on the distant hilltop. As the crowd broke it showed the Mercedes still in the lead, but only 45 seconds astern was the Fiat. On they came, passing the stand in this position, and soon flashing out of sight.

During the short wait which followed there was sighted on the fields southwest of the stand a snake-like procession of belated spectators making their way on foot from long trains of cars on the Long Island Railroad, which had stopped short of Mineola station—victims of the special trains which were to leave at 4 and 5 A.M. and reach Mineola before the start.

When Wagner came by on his second lap his left rear tire explodcd about a hundred

SCORE BOARD ON JUDGES' STAND FACING IN TWO DIRECTIONS OPPOSITE GRANDSTAND.

yards short of the tape; he held his car in hand though, barely missing a photographer who stood in the road, and kept on until out of sight.

Duray went by a few minutes before 7 o'clock, at only moderate speed, and then came the cry, "Two cars coming!"

Out of the crowd broke a gray car, followed by the unmistakable red Renault—the former squarely in the center of the road, the latter rapidly overhauling her in the endeavor to pass on the left. As they ncared the first was made out as No. 5, Foxhall Keene's Mercedes. The red car was the faster, but even after she had an overlap the gray obstinately held the center of the road, never giving an inch.

The plucky little Swiss whose name is a sea of consonants surrounding a solitary islet of a vowel knew his rights, and was not to be bluffed out of them; he drove hard and had his car fairly abreast the Mercedes before the grandstand was reached, but Keene still held the full center of the road. In the narrow space in front of the press stand were officials, reporters, photographers and some spectators, but even this did not stop Szisz. He held his speed until he was timed with a lead of one second over the tape, then on the incline he ran by and took a clear lead.

Once more the cry, "Two cars coming!" and Dingley went by with Tracy but two seconds in his wake. Warden followed a few seconds later, and after another two minutes Cedrino went by at good speed. Now the megaphone sounded "No. 4 ahead at Bull's Head," telling that Lancia was at last in first place.

Heath at good speed passcd, trailed closely by Christie, with White a little later, the latter two just finishing the first round. Hemery was going very fast when he finished his second round, and both Chevrolet and Sartori showed good speed.

It was now 7 o'clock of a warm, bright day, true Indian summer weather, with a light southwest breeze, clear sky and pleasant sunshine. The heavy fur coats had long since disappeared, and men were discarding their lighter overcoats. So far as physical conditions of course and weather were concerned, nothing was lacking for either contestants or spectators. The road itself, with all its dangerous turns, was all that could be asked as a test of strength of car and skill of driver.

The one drawback to the race was the selfish, reckless hoggishness of the spectators, who crowded into the center of thc road on the straights and lined every dangerous turn. Over most of the coursc therc was hardly a moment when a driver was free from the fear of killing some of the venturesomc fools who stood until the very last moment directly in his track.

It was only through good luck that road racing was not saddled with the charge of murdering a score of people about the Albertson turns, and the grand smash-up of the day might have been avoided but for the crowd in the roadway about Lancia's car. This evil was particularly noticeable on the stretch approaching the grandstand, the crowd declining to give way until a car was almost on them.

Lancia finished his third round at 7:13:45 o'clock, showing an average of 23:35 for each lap. Following his passage there came the first noticeable wait of the day, nearly nine minutes before Jenatzy came up, with Duray about 50 seconds later. The megaphone now announced that "No. 12 (Cedrino) has tire troubles at Bull's Head." When Szisz came up within a minute of Duray he was running very fast, and the crowd did some lively dodging to keep clear. Nazzari, just ending his second round, followed, a finger pointed at the off rear tire indicating the cause of his delay. When Keene came up the clock showed that he had lost 3 minutes 20 seconds to Szisz on the third round.

Again the megaphone rang out, "No. 4 has passed Bull's head on fourth lap," and a thrill of interest went through the big crowd. While Tracy, Dingley, Lyttle and some others had many personal adherents about the course, the number of sympathizers with the foreign drivers was very limited; but the fame of Lancia, his bearing, and. above all, his marvelous handling, made friends for him with every round, and cach passing of the stand brought warmer greeting.

It must be said that the crowd was a cold one; there were cheers and applause at times for one man or another, but always from some single group on this or that stand or at the roadside. Where there was a bit of masterful driving or especially clever steering that would have brought a Continental crowd to its feet with a loud roar of approval, those not personally interested sat dumb and mute. In spite of this, as the race progressed it became evident that the big Italian was rapidly winning his way in public favor, and that it was expected that he would win on his merits.

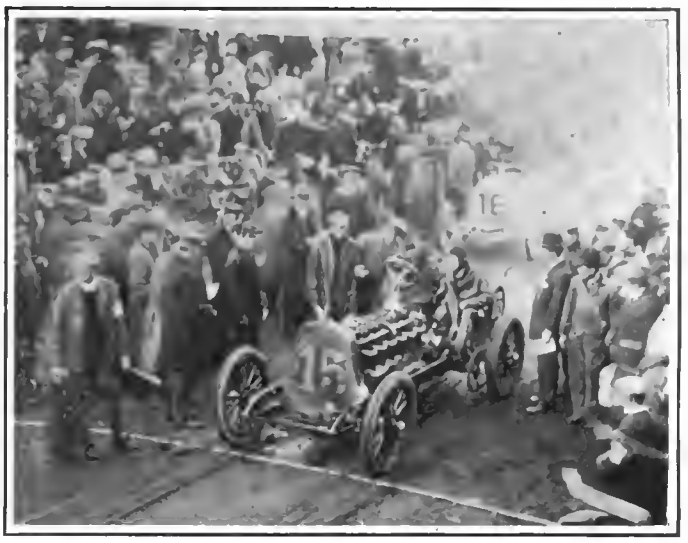
At 7:30 A.M. Warden passed at good speed, followed within the minute by Tracy, Heath, Wagner and Hemery. There was a jump from the sublime to the ridiculous when Lancia, just starting his fifth round at 7:37:03 o'clock, was followed by Christie, starting on the third round, with car running slowly and cylinders missing.

Sartori and Chevrolet finished the third round but a few minutes apart. At 7:47 o'clock Mr. Vanderbilt boarded his racing car near the grandstand, with Dr. Lanehart, and started down the course, giving rise to a rumor that some one had been hurt. When Nazzari ended his third round, a few minutes later, the bundle of inner tubes lashed behind the seats told a new tale of disaster and tire trouble which he was endeavoring to repair by a burst of speed.

A few minutes before 8 o'clock the megaphone gave the news that "No. 3 (Dingley) broke his cylinders at Hyde Park," and it

PHOTOGRAPHS OF THE START OF THE CARS IN THE 1905 VANDERBILT CUP RACE

France—Heath in 120-H.P. Panhard, No. 14.



America—Lyttle in 90-H.P. Pope-Toledo, No. 15.

Italy—Chevrolet in 90-H.P. Fiat, No. 16.

France—Hemery in 80-H.P. Darracq, No. 18.

America—White in 40-H.P. White Steamer, No. 19.

Italy—Sartori in 90-H.P. Fiat, No. 20.

followed by Sartori's black and red Fiat and Heath's big Panhard. The Fiat was only on her eighth round, but from a spectacular point of view this made no difference, as the three flew down the stretch.

On they came, the little fellow setting the pace and bringing the shouting and cheering crowd to its feet as the Darracq crossed the tape with a lead of 2 seconds on the Fiat and 32 seconds on the Panhard. Starting 3 minutes in the lead, the latter had to allow this much time at the finish, thus losing by 3 minutes 32 seconds.

With that characteristic sportsmanship which it had displayed during the day, though the race was by no means over and half a dozen men were still working hard for the minor honors, the crowd swarmed in over the track, even the owners of cars preparing to drive them into the course. As all their efforts failed to restrain the wild mob, the officials dropped their red flags and waved the yellow ones aloft to stop the racing cars.

When Lancia came over the hill for the last time, nearly 10 minutes after the finish, he was compelled to slacken speed through the crowd, even before he met the yellow flags, and he shut off some distance short of the tape, running very slowly. He drew up his car in front of a Fiat box, and with hands, arms, head and shoulders in vigorous pantomime to help out his broken English, tried to explain how it all happened. A crowd gathered and to avoid it he started his motor, the four exhausts driving back the spectators. Then he whirled down the road to the weighing station.

Within a minute of Lancia came Tracy, driving hard and holding his speed in spite of crowd, flags and officials, until he braked down hard on the tape in third place; won for an American car in an international race in spite of an American crowd. It was an exhibition of daredevil driving, through the masses of people on the road, that sent a thrill through the crowd and demonstrated that the American driver did not intend to be robbed of his honors.

There were still on the course several cars which might have won a creditable place at the finish, if the race had not been ended in this summary fashion.

After the finish of the Locomobile, the parked cars were at once driven onto the road, and in a few minutes it was jammed as in the early morning; grandstand, press stand, parking spaces and fields, poured streams of women, men, boys, automobiles and bicycles into the narrow roadway, a pushing, shouting, laughing, snorting, mass of humanity and machinery.

For an hour the road was blocked by two streams, the larger moving westward, the smaller eastward. Then by degrees the tide ebbed, foot passengers made off for the railway stations and trolley lines, the cars took up some semblance of regular motion along the road, and at last the great race was over.

Trivial in comparison with the scene immediately about the roadway, but none the less interesting in itself, was the varied panorama in the fields and crossroads. Last year the first Vanderbilt cup race came to the Long Island habitant as a surprise; he was totally unprepared for it and he accepted it as merely a free show. This year he was fully awake to its true aspect as a source of revenue, and prepared to profit to the utmost.

In the private houses of all classes in village and country, rooms, beds and cots were rented either independently or through the medium of some nearby inkeeper at fabulous prices.

The farmer who stood idle by the wayside last year, hands in pockets, this year reaped a full harvest of rentals for parking spaces or sales of sandwiches, fruit, milk and other edibles to the parties who picnicked about the course all night, as well as to spectators during the race. All along the road private stands were erected and seats sold for such prices as they would bring at the last moment.

On every crossroad cars were parked for a quarter of a mile on each side, their parties finding standing room or impromptu seats on rugs and cushions at the roadside. The dry ground and mild weather made possible this sort of camping out.

Near Mineola an enterprising ex-proprietor of a disbanded circus pitched one of his big tents in the field and sold refreshments within, while outside, along the road, were erected the conventional blue circus seats, for which tickets were sold at a reasonable price. Back of the grandstand were pitched two large tents in which the Automobile Club of America served a plentiful luncheon to its members and their guests.

While a large proportion of the thousands about the course were drawn by mere idle curiosity and cared more for the general spectacle than for the race itself, the

APPEARANCE OF THE COURSE AT GRANDSTAND A FEW MINUTES AFTER THE RACE WAS DECLARED ENDED.

Germany—Warden in 120-H.P. Mercedes, No. 9. Note: this car could not be photographed at the start owing to the dense clouds of smoke that enveloped it. This photograph was made at the Hyde Park turn.

really interested spectators who followed the race closely and intelligently were confined to no one class, many being neither owners nor users of motor cars.

The ordinary attractions of the race course, where even the poorest may be a plunger to the extent of his whole fortune, and may discourse with authority on the merits of horses and jockeys, were missing in this case, but it was nevertheless evident that the race had a fascination of its own for everyone.

Taking Jericho Corner at High Speed.

VISITING the village of Jericho at any time but race day finds nothing to suggest an animated populace, but when twenty world-known racing cars are headed that way at breakneck speed the people quickly find a new interest in life, and so it was on Saturday. The picturesque corner in front of the little post-office, where the Jericho Turnpike swings to the left, and up into the East Norwich road, was crowded with people at an early hour and suggested a stage setting for some rural play.

The "villagers and merrymakers" of the play bill came from every direction in top boots or holiday dresses. Many arrived on foot; bicycles were much in evidence, and country wagons filled with chairs or benches brought party after party from neighboring villages. The automobiles swung up from every direction, and hardly had the first one arived when a sound a mile down the road like a gatling gun brought everyone to attention.

Away off toward Mineola a red flag was waved; then another one much nearer, and the megaphone man at the corner shouted, "Car coming," and the race was on in earnest.

The first racing car was seen at the top of a slight incline about 1,000 feet distant, and as it approached it disappeared, to appear again, a second or two later, at the top of a second raise, just as a small boat rises and falls as it is viewed from the deck of a liner.

Descending a gradual drop toward the turn, the car approached at fearful speed. Jenatzy it was, in No. 1, and this hero of many hard-fought battles with time swirled around the turn at just 6:05 o'clock. Two minutes later Duray went by, and a minute after Lancia, in the magnificent 120-horsepower Fiat, No. 4.

Dingley, the winner of the elimination trials, evidently had been passed somewhere between Mineola and Jericho, but he rushed by in good style at 6:09 o'clock. Here the crowd received its first thrill, for Keene, Mercedes, No. 5, was not more than 500 feet behind. A hard-fought battle must have been continued all around the course afterward, for when they next appeared Keene was a full minute in the lead.

Following Keene, at minute intervals, on the first round came Nos. 6, 7, 8 and 9. Then came Szisz, No. 10, thirty seconds later in the lively red Renault. He was greeted with loud cheers, his dangerous looking car having caught the popular fancy.

"Christie, next," shouted a boy on the roof of the post-office, but it was not to be so, for Cedrino, driving the 90-horsepower Fiat, No. 12, was the next arrival at 6:16 A. M. Sixty seconds later Campbell, in S. B. Stevens' 120-horsepower Mercedes, came up with a large "X" on the radiator where No. 13 should have been, and the crowd "caught on" and yelled, but a few did a little thinking about superstition and other things.

Lyttle, driving the 90-horsepower Pope-Toledo, passed at 6:19:15 o'clock, with Chevrolet, of the Italian team, in No. 16, a 120-horsepower Fiat, 5 seconds later, and Hemery, in No. 18, an 80-horsepower Darracq, 15 seconds following. The excitement was intense, but nothing to what it was at the completion of the circuit, when these three cars passed again in exactly the same relation. It must have been a royal 28-mile race, especially between Lyttle and Chevrolet.

At 6:23 o'clock Sartori, in A. G. Vanderbilt's 90-horsepower Fiat, passed Jericho, and White, No. 19, at 6:26:30 A. M. His steam car ran very quietly, skidded but little on the turn, and traveled fast, but it looked frail in comparison with the road-engines that had preceded it.

After White had gone by, speculation as to what had become of Christie and Basle was interrupted by Jenatzy, who flew past on his second round at 6:29 o'clock. The great Mercedes took the turn short without skidding and seemed to hold to the road better than many of the other cars. Lancia, too, had his Fiat in better control than other drivers.

Approaching the turn at Jericho the road is nearly level, hard and free from ruts. The turn proper forms one of the branches of a Y that leads to East Norwich, the other running down to Hicksville. From a point 500 feet below starts a slight incline, the angle of which increases considerably at the corner, and between the forks of the Y is a small plot of grass which forms a level approach to the village post-office. This plot slopes down to the road on either side, forming a natural "bank" on the outside of the turn, so the cars could negotiate the corner at practically full speed without undue risk. A cobble-stone gutter to the left formed a barrier, preventing the drivers cutting the turn too close, but toward the end of the contest this was disregarded and the "short cuts" made were hair raising even to the experienced observer.

Foxhall Keene, on his second round, realizing the danger at this point, drove far to the right on approaching the turn in order to cut across without striking the gutter. It was a critical moment; his car swerved badly, and it seemed unavoidable that he should strike a large tree that stood menacingly in his path, but with great coolness he held to the turn and passed successfully, amid great applause after the strain of the moment had passed.

On the third round another exciting incident occurred, when Wagner and Hemery, both driving Darracq cars, came around the Jericho turn almost abreast. They threw a great cloud of dust, and the spectators hardly dared look after it had cleared, but the nerveless drivers seemed to fear nothing and disappeared from view still running together at tremendous speed.

In the previous round Wagner had passed 15 minutes ahead of Hemery, so it was now probable that, barring accident, Hemery would lead Wagner at the finish, but no one could have foreseen at that time that the glory of winning the race for France was to be his. After taking the turn, Wagner coolly adjusted his goggles and head gear, driving with one hand, but Hemery never moved in his seat.

Two minutes after the Darracq team passed, White came by at good speed, but on the second round his uplifted hand called attention to the fact that he was in trouble. He had lost his right front tire and stopped 12 minutes at the Diamond control to have it replaced. This was an interesting incident, but it seemed that there were almost too many men to do the work in the least possible time and they were hampered, too, by a crowd of spectators that swarmed to the control from all directions.

Although Lancia on his Fiat finished his fourth round when other drivers were in the third, no one seemed to realize his phenomenal speed until he followed Tracy on the Locomobile into Jericho at 8:09 A. M. Then the spectators realized that he was a lap ahead of Tracy and nearly a lap ahead of Keene, who, at that time, was his nearest competitor.

Lancia was running wonderfully even, taking his corners short but apparently without concern, and going at very high speed. At 8:20 A. M. Lyttle passed again, although he had long been given up as lost, but he was only just starting his third round and was apparently out of the running. His motor bonnet had been removed and he was driving without goggles or mask.

At 8:32:45 o'clock Heath and Lancia, two experienced drivers, and each realizing the other's power, passed almost abreast, Heath slightly in the lead. Heath sat up stiff, calm and businesslike; Lancia crouching low, looking for an opening. Passing the Diamond Rubber Co.'s tire control seemed to suggest to Lancia that he might require the services of his tire crew before long, for he reached down over the right side of his car, feeling the rear tire with his right hand, the while steering with his left. If he could feel the heat of the tire through his heavy gauntlet it must have been very hot indeed.

Gradually the number of contestants grew smaller, but the interest of the spectators did not lessen because the Jericho corner seemed a favorite place for the racers to pass, or attempt to pass, each other, and many were the exciting incidents that happened there. One great trouble and cause of anxiety was the very poor policing of the large crowd that by this time was swarming at the turn.

After each car passed spectators rushed into the street to look up the road, apparently oblivious of the possibility of another car approaching, and this heedless way of courting danger must have been a great trial to the racers. Between the arriving of the cars the rural signal men passed the time chaffing with their neighbors through megaphones, and they were not always the first to warn the spectators of an approaching racer.

One citizen of Jericho, at least, did not approve of the Vanderbilt race; he was an elderly man with gray whiskers, dressed in a faded Grand Army uniform, and although not filled with enthusiasm he was filled with an uncertain brand of liquid refreshment that is procurable both on Long Island and in New Jersey. As the cars passed he would step out into the road and shake his fist down the course and dare another racer to pass, at the same time relating to himself, and a few small boys, the story of how at one time President Roosevelt shook his hand and called him a brave soldier, and he guessed he wasn't afraid of any darned automobile, and he didn't care who knew it.

Seen at East Norwich During the Race.

EAST NORWICH, the diminutive village in which lies the right-angle turn at the northeasterly end of the Vanderbilt Cup course, was selected as a vantage point by more people than the limited accommodations available could care for. The hotel was full to overflowing, and residents who had rooms to let had no difficulty in finding takers among the many who preferred spending the night on the spot to the discomfort of getting up at an unearthly hour and taking chances on a Long Island Railroad train. Difficulties, in fact, beset not a few of the strangers, for there were many who were unable to obtain more comfortable quarters and spent a cold October night in barns and sheds, and a few even camped out in their buggies, sleeping (if they did sleep) wrapped in lap-robes.

An automobile load of young fellows "struck" the village about midnight, when nearly everyone was sleeping (there is little in East Norwich to encourage late hours), and drove up to the hotel with the muffler open. For a moment there was no sound except the rattle of the exhaust; but suddenly the "sports" in the car burst into a chorus of sleep-chasing shouts of "Hey, there, wake up!" "Come out of there, sleepy!" and similar invitations. The din woke up half the village, including THE AUTOMOBILE representative's hostess, who got up and spent an hour sitting on the veranda watching the endless procession of cars and carriages that passed through all night.

East Norwich was far from being a sleepy village the Friday night before the Vanderbilt Cup race. The racing spirit was in the air, and the inhabitants were filled with it, their enthusiasm needing no spur from the "city folks." For weeks the villagers had been watching the cars at their early morning practice and knew them all by name and number, and in many instances were on speaking terms with the drivers. Possibly this comparative intimacy, coupled with a spirit of fair-mindedness, was responsible for the fact that no one was heard to utter a complaint against the race, or to intimate, even vaguely, that it was undesirable.

As on the morning of the elimination trials, the passing vehicles increased in numbers as the time for the start of the race approached, and some decidedly fast running was indulged in by those who were bound for distant points and realized that they had but little time to spare. Automobiles outnumbered horse-drawn vehicles ten to one. Many persons passed through the village on horseback. Every little while an automobile or a carriage would stop at the corner and back into a position well off the road, where a view of the brown, oiled angle was obtainable; and before the first streaks of dawn appeared in the east a knot of enthusiasts stood on the concrete curb that marks the inside of the turn.

As 6 o'clock approached and the daylight increased, the crowd grew until every place that afforded a good view was occupied, and still the people came. Overcrowding at the corner was avoided, however, by the fact that the road on either side of the turn afforded the cars fine opportunities for fast running and the spectators the finest positions for watching the racers. Thus, when it was found that the corner was well filled by the people, newcomers merely walked on until they found spots to their liking, where they remained, or else went from place to place, watching the behavior of the cars at different points where there were slight turns, up-grades or down-grades.

Approaching the East Norwich turn, the course is on a down-grade which follows immediately after a rise. Passing over the crest of the hill under full power, the cars would shoot down the grade toward the corner at fearful speed, being visible from the turn while under full headway, a slight turn on the grade being negotiated without slackening speed. The road is level for a little distance before the corner is reached and for an eighth of a mile after it is passed, when it again drops, and the cars, under the combined influence of open throttle and down-grade, attained a speed that made it difficult to catch a number or to

BANNER ACROSS THE ROAD GIVING WARNING OF APPROACH TO EAST NORWICH TURN.

retain anything but a vague impression of something having roared past, leaving a whirling trail of dust and dead leaves.

The turn at East Norwich is fairly wide, but its width is of little or no advantage to the racing cars because of a telegraph pole which must be cleared before the straight road can be entered. This pole and the grassy bank on which it stood were evidently much respected by the drivers, who, keeping as far as possible to the right of the road on approaching the turn, steered close to the concrete curb on the inside and swept around at a very moderate pace. Such caution was observed, in fact, that not once was there any danger of a car striking the pole, which, according to the prophecies of many croakers, was to have stopped more than one reckless driver, and was watched with morbid interest by many.

Guards with yellow danger flags and red "clear road" signals were stationed at short intervals, so that the approach of each car was signaled some seconds before it came into view. The steady roar of the exhaust, as the cars mounted the hill, usually reached the ears of the spectators through the still air as soon as did the megaphone message, "Car coming!"

Having become somewhat accustomed to the startling celerity with which a racing car can get from Mineola to Each Norwich, the crowd began to watch and listen for the first car a few minutes after 6 o'clock A.M., the starting time. There was little time to wait; the first car, No. 1, shot into view over the brow of the hill at about 6:08 o'clock. "Look at him! *Look* at him!" yelled some one; and it was worth a look to see the way the German car tore down the road.

The crowd shrank back from the road and waited breathlessly for a mad skid around the corner; the morbid ones already had picked places from which the telegraph pole could be seen. Jenatzy held his wild speed until almost upon the turn, when the steady roar of the exhaust was suddenly supplanted by the intermittent reports of gas exploding in the exhaust pipes; the car lost speed with a suddenness that was startling, though without a swerve, and the turn was rounded practically without skidding.

As suddenly as he had slackened his speed Jenatzy picked it up again, commencing to accelerate before he had straightened out his front wheels, and in a twinkling he had shot away and was out of sight down the tree-arched slope.

A minute and a half later another car was heard thundering up the hill in the distance, and No. 2, the big blue De Dietrich, driven by Duray, approached the turn. Assuming that he had started a minute later than Jenatzy, Duray had lost half a minute between the starting line and East Norwich; and, as a matter of fact, the car did not appear to be going as fast as the Mercedes, though its greater bulk may have had some effect in deceiving the eye.

Duray did not hold his speed as long as Jenatzy did. He slowed down more gradually, took the turn at about the same pace as the Mercedes, and accelerated somewhat more tardily.

The car scheduled to start next was No. 3, the 60-horsepower Pope-Toledo, driven by Dingley, winner of first place in the American elimination trials. Next on the list was No. 4, Lancia's huge Fiat, rated at double the power of the Pope-Toledo and a hot favorite among the spectators at East Norwich. There was much conjecturing and a little betting as to whether the Italian would catch and pass the American before reaching the turn. So when "Car coming!" was roared from post to post every neck was craned to see whether the first car would be the Italian or the American, and hope for a brush on the corner ran high.

It was the Fiat; Lancia had not only passed the Pope-Toledo, but had gained more than a minute on the De Dietrich and was driving magnificently—at great speed, but not recklessly. He took the turn much as did Jenatzy in the first car, though hardly as smartly until he commenced to accelerate, when the enormous power of his motor was evident in the astonishing speed attained within a few yards.

LYTTLE WITH POPE-TOLEDO MAKING THE LEFT-HAND TURN IN THE VILLAGE OF EAST NORWICH.

Less than half a minute later Dingley came to the turn in his Pope-Toledo, and after the speed shown by the three preceding machines his performance looked disappointingly slow. He was, comparatively speaking, a long time reaching the corner; commenced to brake very early; took the turn at about the same speed as the others, and accelerated rather slowly.

There was a wait of about two minutes before the arrival of No. 5, the 120-horsepower Mercedes driven for Germany by Foxhall P. Keene, an American. Keene took the corner well, though rather cautiously. In fact, with two or three exceptions every car that passed East Norwich made the turn with great caution, slowing down to a speed that caused little or no skidding. There was much difference, however, in the manner of approaching the turn, and the higher-powered machines naturally accelerated faster and got away sooner than the smaller cars.

Right on the heels of Keene came Wagner, of the French team, driving a Darracq of 80 horsepower—a light machine with short wheelbase. Wagner came over the crest of the hill while Keene was still on the turn, and in fifteen seconds had turned and was away hot on the trail of the German car. The Darracq made a fine turn, holding what appeared to be a higher speed than any of the others and getting around with only a few inches of skidding.

Tracy, American, driving the 90-horsepower Locomobile, No. 7, was next on the list of starters, and as his time approached the buzz among the spectators and the anxious watching of the road for the appearance of No. 7 showed the American driver's popularity. Tracy had taken second place in the American elimination trials, and the ease with which it was done seemed to have given rise to a popular conviction that he had a good deal of speed "up his sleeve."

The Locomobile appeared at about 6:14 A.M., a minute and a quarter after the Darracq had passed. Tracy braked sharply and smoothly, and took the turn much as did Duray in the De Dietrich—fast and easily, considering the long wheelbase of the car.

Barely ten seconds after Tracy came Nazzaro, driving No. 8, a Fiat of 120 horsepower. The Italian took no chances on the turn, but rapidly picked up speed and was away after Tracy before the latter had gone out of sight.

"Car coming! *Two* cars coming!" was the blood-stirring megaphone message that came down the road less than two minutes after Nazarro had passed. First appeared the bright red Renault, No. 10, driven for France by Szisz, going at remarkable speed, and close behind, as if recently passed, was No. 9, Mercedes, driven by John B. Warden for Germany. The sharp-nosed Renault took the turn at a hot pace; but the Mercedes, though not seeming to go as fast, gained perceptibly by smart and close work.

As the two straightened away, with only a few yards between them, the Renault at once commenced widening the gap, and before going out of sight was well ahead of the German car and its American driver.

Christie, of the American team, with his front-drive 60-horsepower car, No. 11, was slated as the next starter; but after a lapse of about two and a half minutes No. 12 appeared instead—a Fiat of 120 horsepower, driven by Cedrino.

The driver was evidently in a reckless mood, for he went at the turn savagely and made one of the worst skids of the day, with the result that he had to slow down to a crawl to avoid going up on the bank and striking the telegraph pole. He lost more time than if he had used his brake more freely in the approach, and seemed to realize it, for on the three subsequent rounds he made he turned in the careful style adopted by most of the other drivers.

Two minutes later the fourth Mercedes passed. This was S. B. Stevens' car, driven by Campbell. In place of a number it bore a huge X, this having been substituted for the unlucky 13 which had fallen to this machine in the drawing. Many of the spectators were puzzled to account for it, believing that the X was a Roman 10; but their lack of information mattered little, as the unfortunately numbered car was not again seen at East Norwich.

Heath, winner of the 1904 Vanderbilt Cup race, passed two minutes later in his French Panhard, No. 14, and turned with caution, though his getting away was characteristically rapid. A minute and a half after Heath came Lyttle, American, in No. 15, the six-cylinder 90-horsepower Pope-Toledo. The machine was running fairly fast, but something was loose and flapping under the front of the machine; it was impossible, owing to the dust, to distinguish what it was.

The fourth Fiat, No. 16, driven for Italy by Chevrolet, passed at about 6:24 A.M., a minute later than the Pope-Toledo. No. 17, Mercedes, did not appear in its turn, and, in fact, was not seen at all. No. 18, the Darracq driven by Hemery, did not come in its turn; neither did the White steam car, No. 19. The next arrival was the last Fiat, No. 20, driven by Paul Sartori, nearly leaving the road in swerving to take the turn; and a minute later came Hemery, No. 18, going fast.

The White steam racer then came around rather slowly, making a slow turn and getting away with a sluggishness that was a sharp contrast to the work of the gasoline cars.

All the cars had now passed except the Christie, No. 11, and the Mercedes, No. 17; the latter was not seen during the race, but Christie came through for the first time at about 6:14 A. M., after a dozen cars had passed for the second time.

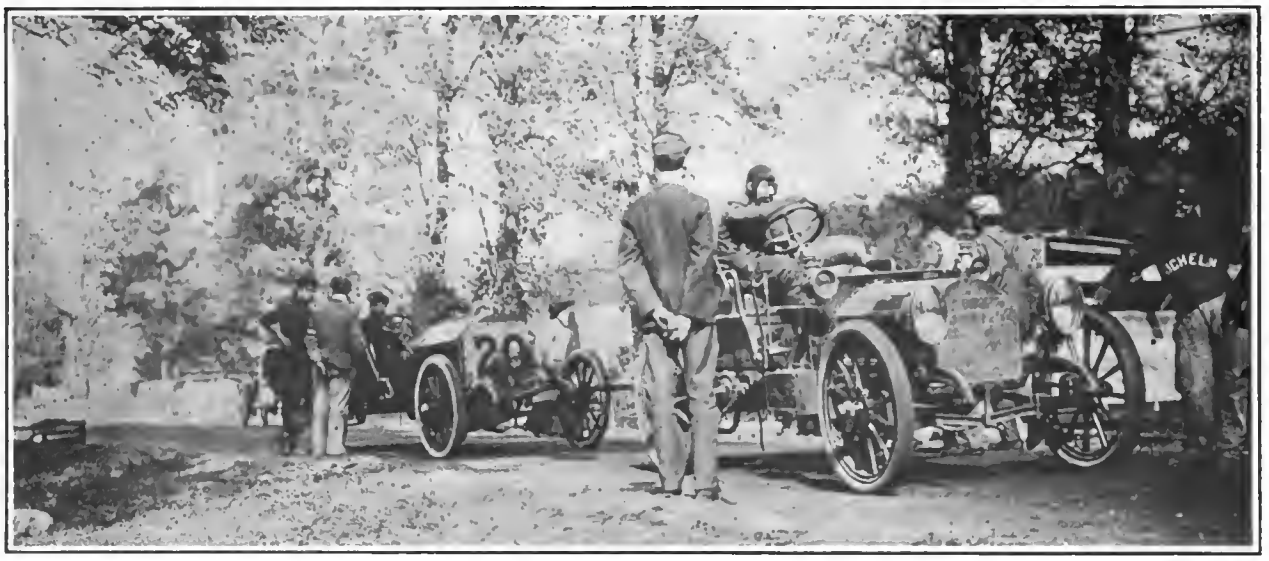
Jenatzy's Mercedes, No. 1, was the first car to pass on the second round, going like the wind and taking the turn in the same style as the first time. He was followed in two minutes by the Italian, Lancia, No. 4, who was evidently gaining.

W. K. VANDERBILT, JR., AND THE PHYSICIAN ANSWERING AN EMERGENCY CALL FROM THE COURSE.

No. 2, Duray, with the De Dietrich, was third, three minutes later; and Wagner, with the 80-horsepower Darracq, No. 6, was next, going at a surprising gait, having passed Foxhall Keene and his Mercedes, No. 6, which made the turn two minutes later.

Dingley, with the smalled Pope-Toledo No. 3, passed next, with No. 8, Fiat, close behind, Nazarro evidently waiting for a chance to pass the American. The Italian got his chance just after the turn had been made, and shot past the Pope-Toledo like a streak while the American was rather slowly picking up his speed.

Szisz, with the red Renault No. 10, passed a minute later; and in two minutes Tracy, Locomobile No. 7, passed for the second time, going well. Then came No. 9, Mercedes, with John B. Warden driving, and No. 12, Fiat, driven by Cedrino, taking the corner not more than two seconds apart and tearing down the road at what appeared to be equal speeds. Two minutes after these two raced away, Christie No. 11 passed through for the first time; he was going fast and made a splendid turn, picking up his speed afterwards remarkably.



AFTER THE RACE—TOWING HOME SARTORI'S FIAT, WITH BROKEN CRANKSHAFT, ON THE EAST NORWICH-JERICHO ROAD.

Heath, Panhard No. 14, and Chevrolet, Fiat No. 16, passed; and then came Lyttle in the six-cylinder Pope-Toledo No. 15, hard pressed by Hemery, in Darracq No. 18. The French car passed the American machine not 220 yards beyond the corner. Fiat No. 20 passed on its second round.

Three minutes later, or at about 6:56 A.M., Lancia, Fiat No. 4, passed for the third time, having gained on Mercedes No. 1, which passed two minutes later. Then came No. 1, Mercedes, followed about a minute later by No. 2, De Dietrich. Renault No. 10 went through at the same fast clip; Keene, Mercedes No. 5, was two minutes later.

Mercedes No. 9 came through just ahead of the smaller Pope-Toledo, which had evidently been passed just before reaching East Norwich; and five seconds later Tracy went through with the Locomobile No. 7, at about 7:10 A.M.

Fiat No. 12, Panhard No. 14 and Darracqs No. 6 and No. 18 passed in the order named; and then Chevrolet, in Fiat No. 16, came through with Lancia, Fiat No. 4, close to his rear wheels; the two went away racing with honors apparently even.

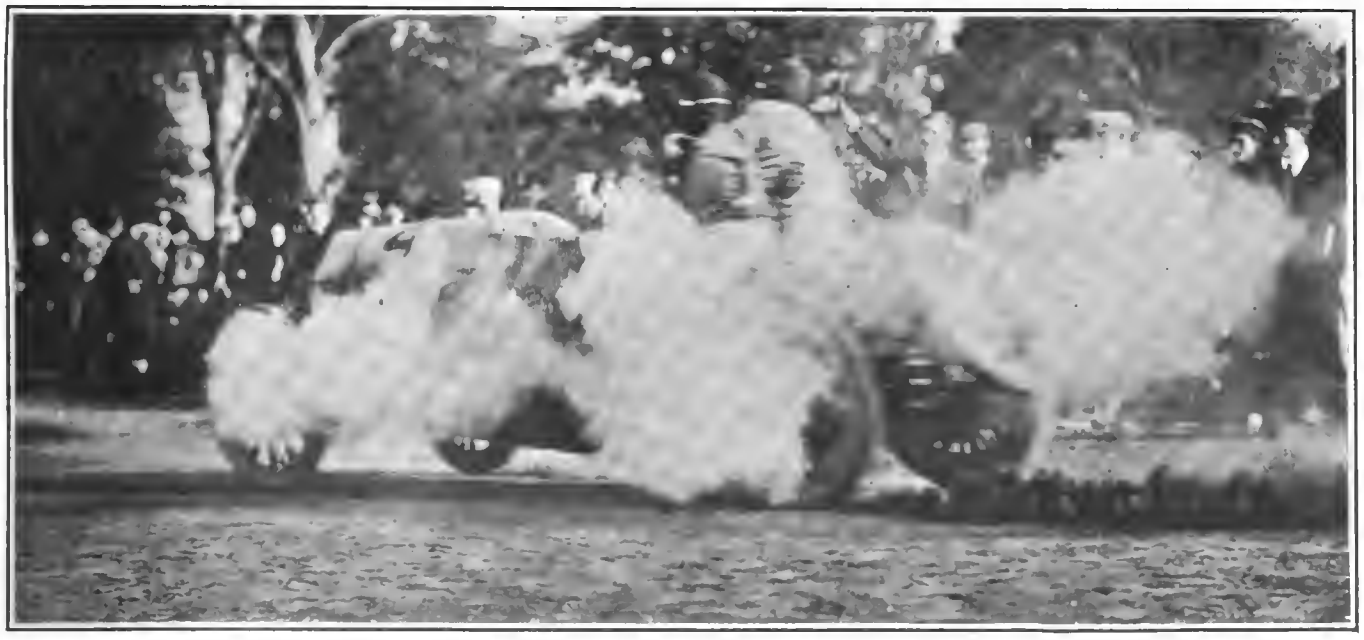
The race at this point was decidedly monotonous, owing to the slow work on the turn; but occasional brushes and the changing order in which the machines passed kept interest alive. Nazarro, with Fiat No. 8, went through on his third round racing with Walter White's steam racer, No. 19, the latter on his second circuit.

Seen beyond the turn on a sharp downgrade, the sight of these two machines racing at top speed was almost terrifying. The Fiat's exhaust raised a thunder under the arching trees, but the White flew along with hardly a sound, and there was something almost devilish in its appearance as it silently hung close to the rear of the huge Italian machine, its sharp nose seeking for room to pass. When the two went out of sight the Fiat was still leading, but the White was making a wonderful burst of speed.

Tracy stopped his Locomobile No. 7 at the Diamond tire control, just beyond the East Norwich turn, on his fourth round, to have the clutch washed with gasoline, and while standing was passed by Heath, Lancia and Hemery—Lancia on his fifth round and the others on their fourth.

Jenatzy, Mercedes No. 1, passed on his fourth round at about 7:28 A.M., and was not again seen in East Norwich. Duray, De Dietrich No. 2, passed on his seventh round at 7:10 A.M., though he again went through after the leaders had finished and the race was stopped.

Tracy, with the Locomobile, was only three or four seconds behind Duray when the latter passed for the seventh time, both



LANCIA NEGOTIATING A CURVE IN HIS FIAT AMID A CLOUD OF SMOKE. NOTE DIRT RAISED BY SKIDDING

on the seventh circuit. The six-cylinder Pope-Toledo, on its fifth round, passed at 8:59 A.M.; just before reaching the point where the cars usually cut down speed for the turn, Lyttle stopped his car, and after a minute's delay again started. No one could be found who was close enough to see just what happened, but it was reported that the mechanic fell out and the stop was made to let him get in again. Apparently he was uninjured.

Lancia, with Fiat No. 4, on its eighth round, and Sartori, with Fiat No. 20, on his sixth round, passed the Pope-Toledo while standing. After this Lyttle passed only once more.

Tracy, driving Locomobile No. 7, was heartily cheered every time he passed after the seventh round. Lancia was also cheered when the crowd realized the magnificent work he had done in lapping the others; but Tracy got the lion's share of the applause.

Heath, in Panhard No. 14, seemed to be taking things very easily during the two last rounds, and many noticed that his always careful turns had become almost sluggish. Tracy usually stopped the Locomobile at the Diamond tire control just beyond East Norwich to have his clutch washed with gasoline, stopping his motor each time. In the ninth round his stop was of nearly four minutes' duration.

Sartori turned the corner for the last time steering with his left hand, his right extended toward his right rear tire as if to indicate that there was something wrong with it. His brother, who acted as mechanic, sat on the floor, his legs swinging, eating an apple with great coolness—or recklessness.

When Heath passed on the last round Lancia was but 30 seconds behind him and driving hard. Lancia was cheered, the spectators realizing the plucky fight he was making in the face of a delay that was believed to have cost him the cup.

During the race rumors of accidents spread with extraordinary rapidity. Foxhall Keene, Lyttle and his mechanic and Christie and his mechanic were reported at different times as having been killed, the rumors in some mysterious way preceding the true stories, which always came a few minutes later by telephone, the instrument having been used more freely than during the elimination trials.

It was noticeable during the race that most of the foreign drivers held their speed longer and reduced speed more rapidly when approaching the turn than did the Americans. Jenatzy, Lancia, Szisz, Heath and Hemery were particularly smart in this work; their braking was remarkable.

The road a little distance on each side of the turn showed the effects of the high speed of the cars; the dust was cleared off the stones in the wheel tracks as if it had been blown away by a powerful blast of air; the crevices between the stones were blown clean, and the stones were packed down hard and close, a loose one being rarely seen.

The crowd at East Norwich soon became accustomed to the cars, and the comparatively slow turns caused the spectators to lose their fear. When cars were approaching people would stand out directly in the way to get a good view, only retreating at the last moment. On several occasions there were narrow escapes.

When two cars made the turn close together everyone would rush out to watch the brush down the road, regardless of the danger from other cars approaching from behind. On the road outside the turn people strolled up and down and waited until the last moment to step aside, regardless of the possibility of a sudden swerve of the coming car.

One villager, much the worse for liquor, made his sinuous way up the road, notwithstanding many efforts to stop him. Fortunately there was a long interval, which allowed him to reach a crossroad, where he turned off and disappeared ten seconds before a car raced around a turn not 300 yards distant.

After the Locomobile passed on the last round interest flagged and the crowd began to disperse. Ten minutes later word was passed around that the race was over, and immediately there was a scattering, the road filling up with people. While the course was black with spectators homeward bound the Renault passed through, running fast, with either water or gasoline dripping on the road. Mercedes No. 9 went through a little later; and the last racing car to take the East Norwich turn was the big blue De Dietrich, which had to make its way through a crowd of touring cars, horse-drawn vehicles, pedestrians and wheelmen.

Some Thrilling Scenes at Bull's Head.

WITH the Vanderbilt Cup race but a few hours away, the usually sleepy country around Roslyn, L. I., and the Bull's Head corner, a mile beyond, was wide-awake on Friday evening. The roads were alive with automobiles which rushed hither and thither with blazing headlights and loudly tooting horns, in a seemingly never-ending procession. The country was truly motor mad, and there was nothing to be heard but automobile talk. A large crowd had gathered at the Bull's Head corner, which is one of the most dangerous turns on the entire course, and patronized the taverns there.

At the White steamer headquarters the force of mechanics were busy at the big racing car behind closed and barred doors. No one was allowed in near the machine, and none of the men connected with it cared to discuss its chances. A few enthusiasts who believed that the car was a winner were going about flashing rolls of bills and seeking bets at even money that the White would either win or finish second. Luckily for them, there were no takers.

As early as midnight parties of men and women began to arrive in automobiles and parked their machines in the fields in and about this famous turn and prepared to camp out for the night. Bonfires were built in the fields, and in many cases coffee was warmed and partaken of. Almost all the

MICHELIN TIRE CAMP ON ROAD LEADING FROM JERICHO TO EAST NORWICH, WHERE FRENCH EXPERTS WERE STATIONED.

AT EAST NORWICH—A TYPICAL GROUP OF SPECTATORS STANDING IN THE COURSE.

cars were well provided with hampers of food, and the occupants had a merry time waiting through the long hours of the night for the morning to dawn. Women were uncomplaining, and, wrapping themselves up in robes or blankets, sat back in the cars and snatched such little sleep as they could.

Every farmhouse or even shed was filled to its full capacity, and at the Bull's Head turn a large party slept out in cots under a temporary tent. Quarters of all sorts were at a premium with enormous prices being offered for them. Money was spent freely, and the Long Island people reaped a wonderful harvest.

It was 4:30 o'clock on Saturday morning when the representative of THE AUTOMOBILE reached the Bull's Head corner, and even at that early hour a crowd of 200 people, men and women, had assembled there, and from every crossroad automobiles loaded to their capacity were speeding.

The White steamer men had given their car its final touches, and Walter White, the driver, was about preparing for the big ordeal that was before him.

Things dragged along without particular incident until 5:30 A.M., when with the first flushes of the dawn brightening the skies the big White car was steamed up, and ten minutes later backed out of the shed where it has been kept for the past six weeks and onto the road. With cries of "Good luck, boys!" the big machine was driven around the Bull's Head corner and disappeared in the dim, uncertain light of the morning, down the road toward Mineola.

The big machine having gone away, things quieted down for a time, and the deputies began to put in an appearance with their flags, their megaphones, their badges and their swelled-up idea of their own importance. The road was roped off at the turn and all was in readiness for the great event.

Shortly after 6 o'clock the word came to the telephone station near by that the first car had started and that the famous Jenatzy in his monster 120-horsepower Mercedes was tearing over the roads toward the Bull's Head turn. Everyone was excited and nerves were at high tension as the minutes passed, and the big car was known to be steadily nearing the turn.

The sun had risen in a clear sky and the oiled road stretched out in perfect condition, hard, firm, and without a blemish. There was no wind, and the morning air was crisp and fresh, making the day an ideal one in every respect.

The road at the Bull's Head corner turns sharply to the left in what might be aptly called, because of its shape, a hairpin turn. The road is lined on the inside with trees and telegraph poles and on the right side by a hotel. Directly ahead is the road leading to Roslyn, and on the right of the turn, halfway around, another hotel, more trees and a large rock placed close to the roadway.

Directly across the road, in a position of extreme danger, but affording a fine view, automobiles had been parked in rows three deep. The turn was truly characterized as a most dangerous one and a place to test the skill and nerve of the drivers.

Far away the faint rumble of an engine was heard, resembling the distant roar of musketry, and almost simultaneously the word was passed by the megaphone men "Clear the road. Here they come!" The crowd fell back and all eyes were fixed on the road ahead while excitement was at the fever point.

Like a shot out of a cannon, a high, gray object whisked into view over the crest of the hill and tore down the road toward the turn. It was car No. 1, the big Mercedes with Jenatzy at the wheel, and he and his mechanic, cowled like monks in their racing hoods, looked weird in the early morning light.

Scarcely slacking speed and with one hand on the brake lever while with the other he handled the steering wheel, the famous German driver rushed at the turn. Swerving to the right to get all the road room possible, he suddenly swung his steering wheel around and at a right angle the big car swerved around the turn, skidding badly and in an instant, with the throttle again open and the engine roaring, was off down the road and out of sight.

The watches at the corner registered 6:15 A. M. as the sensational turn had been made and the big car was again on its way.

A minute later the roar of a motor was again heard, and the big 130-horsepower De Dietrich, driven by Duray, rushed into view and bore down on the corner. The turn was made at 6:17 A. M., the skillful driver following the same tactics of swerving to the right as had Jenatzy. He was more conservative than the German, however, and did not take the turn at such a high rate of speed.

The crowd waited with keen excitement for the arrival of Dingley in his Pope-Toledo, No. 3, but were surprised when, at 6:17:30 Lancia, the daredevil of the race, in his Fiat, literally shot over the hill and at a speed that was little short of marvelous dashed down the road for the turn. He grasped his brake lever when about fifty yards from the corner, but the speed of his machine was so great that it seemed impossible for him to slacken it sufficiently to save the car from overturning.

Lancia's face was set and stern and his mechanic, realizing the danger, raised up in the car and leaned far out to balance it. In that one instant of uncertainty hearts stood still and then the big machine struck the turn. The tires on the rear wheels seemed to lap over until they touched the rims. The machine quivered and shook for an instant as the tires tore up the dirt and threw it ten feet away and then the machine swept around the curve and Lancia was out of sight in an instant. It all happened in the twinkling of an eye, but the effect was startling.

Dingley hove in sight in the Pope-Toledo. The motor seemed to be missing fire badly and the mechanic was busy making adjustments. It was noticed that his method of taking the turn was entirely different from that of the foreign drivers. He rushed at the corner at high speed, but instead of swerving to the right he swung close over to the left of the turn and hugged the inside of the road, getting around in good style.

Wagner, in his 80-horsepower Darracq, now came rushing down the road, and directly behind him came Foxhall Keene in his 120-horsepower Mercedes. It was evident that the two cars had been racing and both were hitting up a terrific pace. People at the turn made a break for safety, rushing in all directions, for it looked as if the two machines must meet in collision at the turn, as neither appeared to be willing to slacken speed or give way to the other.

Keene was close behind Wagner, but the latter maintained the lead until the corner was reached, and then as he was turning he seemed to experience some difficulty with his motor and the engine missed explosions. The car slowed down perceptibly and Keene dashed around the inside of the curve, put on all power and passed Wagner.

A moment later the latter's engine resumed operations and he was off in close pursuit of the Mercedes.

No. 7, the Locomobile driven by Tracy, was due next, but in its place Nazzari, in the Fiat, hove into view at 6:22:30 A. M. The intrepid Italian went at the turn in much the same manner that Lancia had and sailed around it with his back wheels skidding wildly. He managed to hold the car in a straight course and shot away down the road amid the cheers of the crowd.

A half minute later the Locomobile reached the turn and got around after a terrifie skid which tore up the road to the depth of an inch or more for a distance of several feet. It seemed wonderful that tires could stand the strain.

No. 9, the Warden Mercedes, did not arrive next, as it should have done, according to schedule, but in its place the intrepid Szisz in his Renault "Red Bug," swerving from side to side of the road like a drunken demon, whirled into view. It seemed as though all turns were straight roads to this daredevil driver, and he rushed at the turn at a speed that seemed suicidal and in an instant whirled around safely and was gone again.

Half a minute later Warden reached the turn. In some manner or other he had miscalculated the distance and took a most dangerous skid, narrowly escaping a tree, but managed to get his car headed right again and shot down the road, while the crowd drew a sigh of relief.

Cedrino in the 90-horsepower Fiat passed the corner at 6:26:30 o'clock, making a careful and excellent turn.

The "X" Mercedes, driven by Campbell, made its first and only appearance at the Bull's Head turn at 6:28:44 A. M., slowing down perceptibly with the motor cut out and the car evidently coasting. Once around the turn the engine started again and the car jerked ahead with terrific force as the clutch was let in again.

Heath, in his 120-horsepower Panhard, was the next arrival at 6:29:30 o'clock, and those who expected a reckless and sensational turn were disappointed. The winner of last year's cup approached the corner at greatly diminished speed, turned way out to the right, swerved over to the left and got around at a gait that many touring cars have exceeded and was off again down the road at high speed a few seconds later.

Again the crowd at the Bull's Head turn was destined to see some very clever and exciting driving when Hemery, the winner of the race, driving his 80-horsepower Darracq, and Lyttle, in the 90-horsepower Pope-Toledo, came in view at the same instant. Lyttle was slightly in the lead and Hemery driving his little wire-wheeled racer with daredevil recklessness, bore down upon him. Swiftly the gap between the two machines lessened as they tore down to the turn, and again the crowd, fearing a collision, scrambled away from the corner and ran for places of safety.

Lyttle had the lead, but Hemery had the nerve. Lyttle, still traveling at a terrific pace, swerved to the right to make a wide dash at the turn, and then the little Frenchman, taking a life and death chance, opened wide his throttle. The motor roared in response, the machine seemed to be lifted from the ground, and it dashed forward seemingly straight ahead at the huge tree at the corner. Hemery, when it seemed that he must dash his life out against the huge tree, swung his car clear of the obstruction. That clearance was but an inch, but the machine rushed around the corner careening and swerving, the mechanic throwing his body far out to balance it, and in the twinkling of an eye the turn had been made and the Darracq was gone.

Lyttle had slowed down and swung around the curve directly behind Hemery, but was not as quick getting under headway again as was the Frenchman.

Chevrolet soon came smashing over the roads in his 120-horsepower Fiat. The Italian had his car well in hand and took the turn at reduced speed and with great caution.

Sartori, another of the Italian team, rounded the corner on his first lap at 6:34:30 A. M. in good style, and then the crowd settled down to wait for the White steamer, which had not as yet passed on its first lap.

At 6:40 o'clock the cry was raised that the White was coming, and the crowd was cleared away from the headquarters of that machine while the repairmen got water and gasoline supplies ready.

In an instant the long gray object shot over the crest of the hill, ploughing around the corner with a wide skid and disappearing from view. It was Jenatzy in the Mercedes on his second round.

A minute later Lancia reached the corner, having completed the round in record-breaking time, and took the curve at a speed that seemed little short of impossible. The tires of his machine cut wide swaths in the road and threw the loose dirt for ten feet.

A half minute later the belated White steamer came into view, running slowly and appearently in trouble. The same scene that had occurred at the elimination trials was repeated, when the mechanic waved his arms as a signal that help was needed and water. White drove the car off the road and into the shed. Instantly the crowd rushed to the doors, but they were slammed closed. The car as it entered the shed was making that peculiar popping noise which on the White touring car tells of back firing.

Inside the shed men worked with frantic haste, and at 6:55 o'clock the White car was again driven out and started over the course, followed by the cheers of the crowd and cries of "Better luck this time, boys."

Among the cars that had passed were Duray in the De Dietrich and Wagner in the Darracq. This was the second time round for both. Wagner experienced some difficulty at the turn and his motor slowed down perceptibly. Keene in his Mercedes followed, and the others came along, making the turn without incident.

At 6:55 A. M. Christie, in his 60-horsepower car made his first appearance, coming down the road at a high rate of speed and taking the turn fast. His car being so low hung swung the corner well and without

DIAMOND TIRE REPAIR STATION FOR AMERICAN CARS ON THE LAKEVILLE-HYDE PARK ROAD NEAR LAKE SUCCESS.

any great amount of skidding. He was followed by Heath (Panhard) and Sartori (Fiat), both on their second round.

Lancia, still hitting up his terrific pace, passed on his third lap, making a fast turn. All the drivers were now more familiar with the corner and took the turns with greater confidence and also without so much skidding. It was highly noticeable that the foreign drivers invariably swerved to the right before taking the turn, while the Americans hugged the left, the inside of the turn. There were no particular incidents at the corner until Cedrino, driving the 90-horsepower Fiat, went out of the race.

The intrepid foreign driver came up the road at a noticeably slow speed on his fourth lap. It was evident that the engine was not operating properly, and the mechanic was working frantically at the pump. The car reached the turn going slowly, and after getting around was seen to lose momentum and Cedrino drove to the side of the road and stopped. He was out in a minute, as was his mechanic, and the two were surrounded by a large crowd.

The special officers did good work in keeping the people off the course and out of danger's way and also keeping them back so that the men could work at the car. The hood was lifted up and it was seen that the cylinders were covered with oil. The main oil feed pipe had broken off short and, despite the mechanic's efforts, he could not make the two ends join. Cedrino was in a fever heat of excitement as the other cars rushed by, and he realized that he was losing precious moments that could never be regained.

Five, ten, fifteen minutes slipped by, and with them went the Fiat's chances in the race. Cedrino, unable to control his feelings, burst into tears, and then ordering the mechanic to start the motor, went on without oil. That was the last seen of him at the Bull's Head corner.

BANNER ACROSS I. U. WILLETS ROAD WARNING AGAINST RAILROAD AT ALBERTSON.

Jenatzy, driving the big Mercedes, came into view on his fifth lap. Surprise was expressed at his slow pace, and as he reached the corner his motor stopped sparking and the machine coasted. Jenatzy let the car go round of its own momentum, and driving to the side of the road jumped out with his mechanic.

The scene was repeated as had occurred when Cedrino stopped, and the officers kept the curious crowd back. Jenatzy, unlike Cedrino, was quite collected. He gave his mechanic a few directions and the latter lifted up the hood and peered at the motor. Then he reported in a few words to Jenatzy and the hood went down and was strapped into place again.

It was evident that the car had met with a mishap that could not be repaired and was out of the race. The resigned expression on Jenatzy's face told this as plainly as any words could have done.

Subsequently Jenatzy, in an interview, answered all questions put him pleasantly and without reserve. He said that he had discovered while on the second round of the course that the third cylinder of his engine had cracked and was leaking. He knew that it was only a question of time before he would be put out of the race, as the crack increased in size, but he decided to take a chance and had driven at the highest possible speed until the motor had finally stopped exploding and he knew that no repairs could be made and that he was out of the race.

During this conversation the other machines in the race were passing at high speed, but Jenatzy paid no attention to them, and, excusing himself, walked over to the

CHEVROLET ROUNDING FIRST TURN OF THE ALBERTSON S-CURVE, WHERE HE AFTERWARD COLLIDED WITH A TELEGRAPH POLE.

Bull's Head Tavern and ordered a drink of beer.

Having quenched his own thirst, he secured another glass of beer and a handful of sandwiches and carried the beer down the road to his mechanic, who drank it. The two then sat down on the road alongside their car and partook of the sandwiches with apparent relish, watching the other machines in the race take the turn with as great interest as any of the other spectators. Jenatzy and his mechanic commented in their own language on the manner in which the other drivers handled their cars at the corner, and seemed to enjoy the thrilling contest in which they had been playing so important a part just a short time before.

At 8:50 the spectators at the turn were treated to another hair breadth play with death, when Duray, in the big blue De Dietrich, on his seventh round narrowly escaped a smash-up with Warden in the 120-horsepower Mercedes. The two came down the road at a terrific pace, Warden slightly in the lead, and Duray overtaking him. It was evident that Warden would not give way to let the faster car pass him, but held the center of the road.

Duray, following at a terrific pace, was obliged to jam on his brakes in order to prevent crashing into the rear of the Mercedes. His car skidded dangerously and the crowd rushed back almost in a panic. The machine held the center of the road, however, and Warden swung the turn with a bad skid, Duray following closely behind.

Duray's mechanic was fairly purple in the face with rage, and shook his fist threateningly at the Mercedes car, which was rapidly disappearing from view. Duray opened up his engine and started in pursuit, and evidently overtook and passed Warden, for at the next round at Bull's Head he was full ten minutes ahead.

At this time a party of men who had been further down the course came along with a collection of railroad spikes, glass and nails, which they claimed to have found a mile below on the course. It was believed that these had been thrown out by some mischievous person, and but for their prompt discovery and removal might have caused serious trouble.

There were no incidents of interest for a time at Bull's Head after Duray and Warden had gone, the cars arriving every few minutes and taking the turn in good style. At 9:28:30 A. M. the Christie car, on its fifth round, came very nearly upsetting on the turn, and for a minute it looked as if a fatal accident would occur. The machine came down the road at a terrific pace, and to the amazement of the crowd did not slacken speed at all when approaching the turn. The driver was seen to be frantically working at his throttle and spark levers, but it seemed that these had jammed, and the engine kept the big machine moving at a high speed. It struck the turn going full forty-five miles an hour, and whirled around like a catapult, two wheels off the ground and the other two plowing up the road and throwing the loose stones and dirt high in the air. The spectators were covered with dirt, and many of them were temporarily blinded.

It seems as if the car must turn turtle, but the fact that it was low hung and that Christie did not lose his nerve alone saved it. The machine managed to get around the turn and then the engine began to miss fire and stalled completely.

The car stopped and was pushed to the side of the road. The mechanic got out, tinkered with the engine, then got in again, and several men in the crowd pushed the car along the road. Christie threw in his clutch, the engine started, and the big machine was off on its way again. It met its quietus further down the road, however, and did not pass the Bull's Head corner again.

Each appearance of the White steamer was a signal for cheers from the crowd, but it was evident early in the morning that the car was among the "also rans."

The last notable incident of the day at the turn occurred at 9:45, when Hemery, in the Darracq, experienced motor troubles, and his car stopped for a moment. His engine was missing fire as he approached the turn, and the car coasted around when the engine nearly stalled. The mechanic was about to get out to see what the trouble was when the engine suddenly started racing again, and the car was off like a shot.

When Hemery, Heath, Tracy, Lancia, Szisz, Nazarri, Sartori, Warden, Duray and Chevrolet had passed the corner on their last lap, and the news had come over the 'phone of Hemery's victory, the crowd started away on foot, in autos and in carriages, and the greatest automobile race America has ever seen was at an end.

Guinea Woods and the Albertson S-Turn.

THE first car to pass the Guinea Road turn was No. 1 (Jenatzy) of the German team at 6:14 A.M. He made the turn with a broad sweep and skidded some, but at the same time seemed to have the machine well in hand. Two minutes later came Lancia, who had moved up to second from fourth position. His method of taking the turn was similar to Jenatzy's.

Then came Duray of the French team, followed about a minute later by Dingley and his Pope-Toledo. Then Wagner on his Darracq, who had passed Foxhall Keene. As he rounded the right hand turn of the S at Willis Avenue, his right wheel just grazed a telegraph pole, but he escaped without serious injury, keeping right on.

After Keene came Nazzaro and Tracy, closely followed by Szisz on his Renault, who had passed Warden on his Mercedes and was leading him by over a minute. Then came Cedrino and Campbell and Heath, followed closely by Hemery on his Darracq, who had succeeded thus early in passing both Lyttle and Chevrolet. Then Sartori, who, although last the position in which he started, still seemed to be doing well.

At the second round, Jenatzy was still in the lead, but Lancia had cut it down considerably. Then came Duray and Wagner, who was steadily gaining, having crept up one place. Then Keene, Nazzaro and Szisz, who was also working up with the leaders; then came Dingley and Tracy.

Next came Cedrino; he rounded the corner rather slowly, making a very close turn; there was evidently something the matter with his motor, for just as he rounded the turn, although he threw out his clutch, his motor stopped, and his mechanic had to get out and start it.

Then came Warden on his Mercedes. Then, at about 7 o'clock, White and Christie close together in the order named passed on their first round. They were closely followed by Heath, Hemery, Chevrolet and Sartori.

Lancia led on the third round, Jenatzy having fallen back to second place. Duray still kept in third. Szisz had come up to fourth and Keene had fallen back to sixth, Nazzaro having come up to fifth.

Tracy seemed to have gotten his second wind, as it were, as he had now crawled up to seventh place. Warden had also on this round climbed up from eleventh to eighth place. Dingley had fallen back to ninth place. Heath had advanced from twelfth to tenth place, having passed Wagner, who had fallen back to eleventh place from fourth. Hemery was in twelfth place, close behind his team mate, Wagner. Then came Chevrolet, Sartori and Cedrino, followed by Lyttle.

On the fourth round, Lancia led, having increased his lead to a considerable extent. Jenatzy had dropped out, but Warden had crept up from seventh to second place. Keene was in third place, closely pursued by Szisz, who still retained fourth place. Tracy had now moved up to fifth place, and Sartori was now in sixth. Duray dropped back to seventh, and Heath was still gaining, having moved up to eighth. Nazzaro came next. Then came Hemery, Nazzaro, Chevrolet, Lyttle and Wagner.

Just before reaching the S-turn, Wagner was forced to retire, having lost the gear cover of his transmission; the escape of the oil from the gear box caused one of its bearings to seize, and forced his retirement.

On the fifth round, Lancia was still increasing his lead with Keene second. Szisz had come up to third, with Heath a close fourth. Tracy was still fifth, but Warden had fallen back to sixth, and Duray was closely following in seventh place.

Just beyond the turn in the Guinea woods

HEATH IN THE PANHARD TAKING THE RIGHT-HAND TURN IN THE GUINEA WOODS AT GOOD SPEED

Duray made a spurt and passed Warden a little further down the road. Then came Sartori and Hemery.

Just after Warden and Duray passed on their fifth round, White came along on his third. As he rounded the Guinea turn, his left front tire gave way, and he skidded straight for a large telegraph pole on the left of the road. With presence of mind, he steered his machine to the left of the pole, just missing it by inches. Fortunately, the ground at this point was fairly level, and after clearing the pole he steered back on the road again and kept on to the nearest tire repair depot, his driving winning him a hearty cheer from the spectators at the turn as well as from the mechanics at Heath's supply station, which was located on the right of the course, a hundred yards or so from the turn.

On the sixth round, Lancia was still increasing his lead, with Keene second. After the turn in the Guinea woods, Keene and Heath had raced down the I. U. Willet's Road for the S turn at Willis avenue, which Keene reached first.

Apparently, in the effort to get ahead of his rival, Keene took the first turn of the S curve at a high rate of speed and skidded across the road, his car colliding with a telegraph pole on the west side of Willis avenue. Luttjen, the mechanician, was thrown into the road, but scrambled out of the way of the following cars under the damaged machine. Keene, though badly shaken up, was not seriously hurt. The car was badly damaged in its running gear, the left front wheel was smashed and the driving sprocket on the left side was twisted out of shape.

The car was dragged up on the grass in the field adjoining the road, and immediately surrounded by a great crowd of spectators, many of whom rushed across the road in all directions, regardless of the fact that machines were due to arrive at racing speed at any moment. After the mishap, when Mr. Keene learned that he was then second, he expressed regret that the wreck had put him out of the running, especially when he was making such a good showing.

Heath had in the meanwhile come up to third place, with Tracy fourth, Warden fifth and Duray sixth. Szisz was seventh and Hemery eighth. Then came Nazzari, Sartori, Chevrolet and Lyttle.

On the seventh round Lancia still led, but Heath was second, Duray third, Hemery fourth, Tracy fifth, Szisz sixth and Nazzari seventh. Then came Warden, Sartori, Chevrolet, Lyttle.

On this round Chevrolet collided with the same telegraph pole that was responsible

LANCIA TAKING THE GUINEA WOODS CURVE, HIS MECHANICIAN LOOKING BACKWARD IN CHARACTERISTIC ATTITUDE.

for the accident to Keene., Chevrolet appears to have hit the pole squarely with the left front wheel, shattering it into pieces and shearing all the spokes at the hub. The end of the axle was bent backward almost at right angles to its proper position. Fortunately, no one was hurt. The car was hauled up into the the field, close to where Keene's machine was laid out.

On the eighth round, Lancia still led, but Hemery had come up to the second place; Heath was in third, Nazzari was fourth, Szisz fifth and Tracy sixth; Sartori was seventh and Warden eighth. These last two dropped out on this round.

On his eighth round Heath stopped to take on supplies, and it was very interesting to see the methodical manner in which this was done. Two attended to the filling of the gasoline tank. One placed the large funnel in position, while the second was ready instantly to pour in the can of gasoline. Another filled the radiator with water, while a fourth filled the oil tank on the dash. A couple more made some slight adjustments, and examined tires, while Heath and his mechanic partook of refreshments. The whole process took just one minute and forty-five seconds.

On his fourth round Dingley lost his starting crank at the turn, and sent his mechanic back after it.

On the ninth round, Hemery pressed Heath very closely at the turn in the Guinea woods, and a small boy who had gone out into the road to look at Heath's number, was so close to Hemery when he passed that Hemery reached out to push him away. It certainly was a narrow escape. Lancia was third, with Tracy fourth and Szisz fifth, only a minute behind.

On the last round Hemery led Heath by a minute and fifteen seconds, and Lancia led Tracy by three minutes and forty-five seconds, leaving just forty-five seconds for Tracy to make up in order to get third place. At this point the officials declared the course open for regular travel.

At Lakeville and the Nearby S-Curve.

THE acute-angle left turn at Lakeville is sharper than any other turn on the course, and for that reason might have been supposed to be the most dangerous. In fact, it probably was the most dangerous; but for that very reason the drivers, almost without exception, took it with more than usual care, and no telephone poles were hit, nor was the inevitable crowd of spectators facing the turn ever in actual danger.

Far more thrilling, because the speeds were higher and the actual skidding greater, was the short but formidable S-curve about three-quarters of a mile east of the Lakeville turn; but even here no car was actually ditched, though several had perilously little margin to spare.

The one real disaster in the Lakeville territory occurred just beyond (west of) this S-curve, where, putting on full power for a slight up-grade, the cars had worn a pair of ruts, about two inches deep, in the oiled roadbed. Here Lyttle, going on his fifth round about half an hour before the race was closed, lost control of his steering, owing, apparently, to too abrupt an effort to get out of the ruts. The big six-cylinder car swerved viciously off the road, ran up a bank several feet high, and smashed through a rail fence into the field beyond. Neither Lyttle nor his mechanician was hurt, for a wonder; but the front axle was badly bent by its impact on the fence, the two front tires were torn, and the commutator was broken.

Coming as it did at the end of a series of troubles that made it hopeless to attempt to place the car, this mishap was accepted philosophically by Lyttle, who, with his mechanician, strolled on to the Diamond repair station near Lake Success, where they unfolded their story to sympathetic hearers.

At Lakeville, as elsewhere, the road was roped off near the turn, and a numerous and reasonably efficient body of deputy sheriffs and flagmen, armed with badges and megaphones, kept the course clear. In the cornfield in the angle of the turn several market wagons, doing passenger service for the occasion, were parked, and automobiles and carriages were in the field and lined up along the approaching roads.

To do the public justice, the danger of viewing the races from a point just ahead of the approach to the turn seemed to be better realized than last year, and the throng at this perilous point of vantage was less heartbreaking. Even so, however, many would have been injured had a car escaped from control.

The first contestant to appear was Jenatzy, whose volleying Mercedes, heralded by a great waving of flags, rushed up to the turn at about 6:21 o'clock, and, taking it wide at the approach, cutting the corner sharply, and skidding hard on the last portion, darted away with a crescendo roar of exhausts, which slackened for an instant as the veteran driver changed into fourth gear, and then ran up in another crescendo audible long after the car was out of sight on

LOCOMOBILE No. 7 STOPPED AT REPAIR STATION AT LAKE SUCCESS TO TAKE ON LUBRICATING OIL, THE CROWD LOOKING ON.

SNAPSHOT TAKEN AT THE INSTANT FOXHALL KEENE IN THE MERCEDES NO. 5 COLLIDED WITH TELEGRAPH POLE.

the winding road. Jenatzy appeared but thrice, but each time his furious acceleration beyond the turn was a feature of the race.

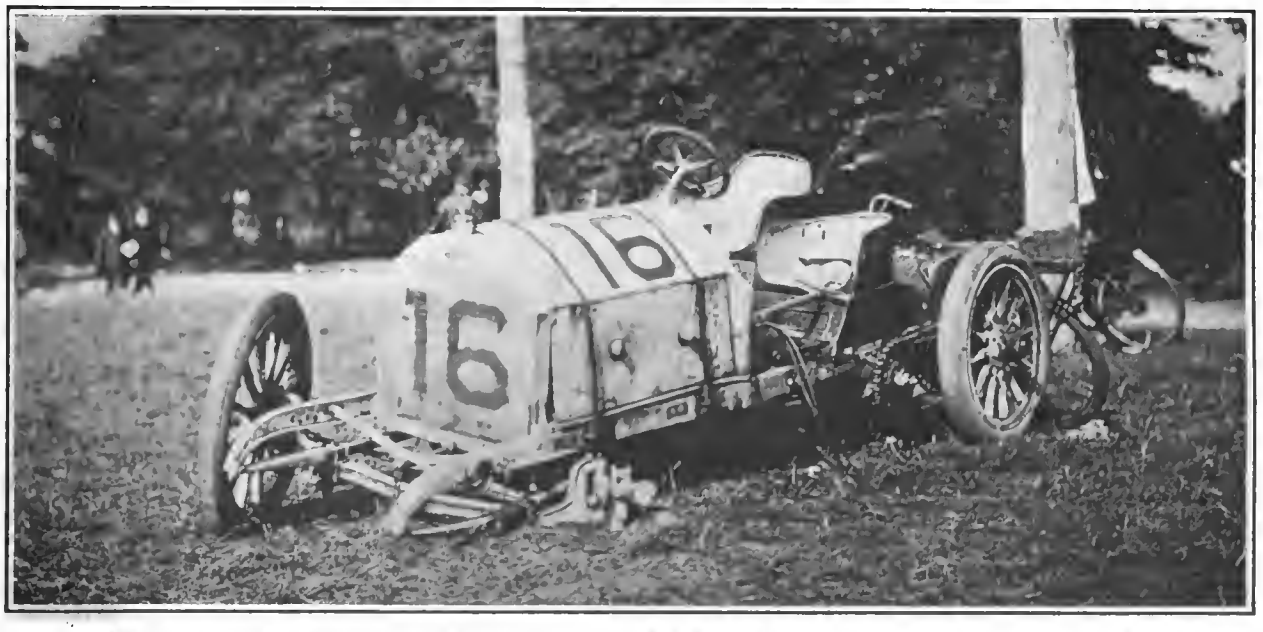
A wait of two minutes, and then not Duray but Lancia appeared, his gain of two minutes on Jenatzy giving early token of the marvelous speed he was getting out of his car. Probably because his speed on the straight was so ample, Lancia made no attempt at spectacular driving on the turns. He skidded, of course, "good and plenty," but he did not give the impression of recklessness that Chevrolet, Sartori, Hemery and, to a less extent, the two Pope-Toledo drivers did. On the other hand, Heath, Tracy and, sometimes at least, Keene, Duray and White took the turn with evident caution.

Following came Duray just behind Lancia; Dingley, with Wagner just behind and overtaking him; then Keene, Nazzari, Tracy, with Szisz just behind; Warden, Cedrino, Campbell—his only appearance—Heath, Lyttle, straining every nerve to keep his distance from Chevrolet; Hemery and Sartori, all in the order named.

Hemery had not struck his gait, for he had lost nearly two minutes to Jenatzy. Neither White nor Christie had put in an appearance. At 7:04 o'clock, after every car from 1 to 10 inclusive had gone by on its second round, these two laggards burst upon the scene, engaged, it would seem, in a little private race between themselves, in which White had just scored by passing Christie.

No. 17 being out of it, and all the other racers being accounted for, THE AUTOMOBILE representative took the opportunity to walk over the road east of the turn. For about a mile this road is by all odds the most dangerous portion of the course outside of the actual turns. It is hilly, though none of the hills are very steep; the road in many places runs through shallow cuts, and it winds so much that frequently one cannot see a hundred feet ahead.

Through Searingtown the road is sufficiently straight, though undulating, but as one goes west in the direction of the race one meets first a slight right, then a left bend, leading to the crest of a small elevation. Another right bend, with the road beyond hidden by a bank and picket fence, and then one drops suddenly down to a 6 per cent. grade, 70 or 100 yards long,



CHEVROLET'S FIAT CAR LYING IN A FIELD AT THE ALBERTSON S-CURVE AFTER COLLIDING WITH THE SAME POLE.

ending in a quick right bend—the first half of the S-curve.

The road is crowned, not banked, and early in the race every particle of loose dirt had been picked up from the inside half of the bend and thrown, two or three inches deep, on the outer half.

The only conceivable way to take this bend safely was to shut off all power and use the brakes before reaching the right bend at the crest. This involved an exact knowledge of the landmarks, but it was evident that their practice had given the drivers this knowledge, for all of them throttled or switched off the ignition for a hundred yards or so before appearing around the upper bend.

It would be stretching things to say that any of them took the curve "safely," however. The Italians, in particular, came down the little grade in appalling fashion, their cars bounding off the ground with all four wheels, under the struggle between centrifugal force and the adhesion of the tires.

It was exactly the way turns are taken in track racing, the front wheels being deflected toward the inside of the curve, and the car sliding, as it were, diagonally instead of going straight. With such going it was frequently impossible to hold a car to the inside of the turn, and when the dirt on the outside was struck one frequently wondered that the car stayed in the road at all.

Tracy, indeed, on his sixth round made a fearful triple slew which looked for a moment as if it might ditch the car. He remarked after the race that the motion of the steering gear is reduced so much that very quick work with the steering wheel is required in case the car slews.

A close chase of Duray by Hemery, both cars going at such a pace that it was hard to see how they got around the curve at all, occurred on the seventh round.

Several other pursuits were seen here—one of Chevrolet by Heath, who was a lap ahead and trying to pass—all of which were hair-raising, since on such occasions the drivers seemed quite to forget what little prudence they showed at other times.

A HUMOROUS SITUATION—FOXHALL KEENE ON RETURNING TO THE GRANDSTAND AFTER HIS MISHAP WAS REQUESTED TO LEAVE BY A POLICE OFFICER.

The second half of the S-curve, a level but quick bend to the left, with the road beyond hidden by a high bank, follows immediately on the first. Beyond is a straight rise, 300 yards long and of 5 or 6 per cent. grade, ending in an easy right bend, with another just beyond, and then a slight descent of 200 yards to a very sharp left bend, with a high bank shutting off the view on the inside.

The racers shut off power till in view of the ascent beyond the S-turn, and then rushed under full power up the hill, not shutting off till near the little descent leading to the left bend last mentioned.

On account of its extreme sharpness, the outside of this bend was banked with dirt specially for the race, but the night before the race somebody's touring car went over the bank into the cornfield just beyond, taking away the top of the rail fence and spilling a lot of eatables, which were still visible on the morning of the race, though the car had gone. A telephone pole near the outside of the bank had luckily been missed.

To go over this bank would have meant the finish of any car in the race, and very few of the drivers used even speed enough to get both outer and inner wheels on the dirt portion of the turn. As usual, the turn was taken with a wide approach, and the corner cut sharply. On account of its softness, the dirt was pretty badly torn and rutted.

It was on the ascent just beyond the S-curve that Lyttle met the disabling mishap already mentioned. The ruts which proved his undoing were insignificant enough, measured by everyday standards; but they were deep enough to demand something of a twist of the steering wheel to get a car out of them, and apparently Lyttle, instead of simply following the ruts to their end, unwisely forced the car out of them, with the results stated.

Going up this little hill on his eighth round, Lancia was seen to go by Christie with astonishing ease. Possibly the latter, who doubtless knew Lancia was behind, slowed down purposely to avoid the risk of being passed on the turns just ahead.

The long delay before Lancia's eighth appearance gave rise to some anxiety and speculation as to what had befallen him. A comparison of score cards showed that Hemery, Heath and Tracy held the best places, with little choice between the first two. Warden and Szisz were still going creditably, and the latter, though his times by rounds were quite irregular, seemed

CEDRINO'S FIAT LAID OUT ON THE WILLETS ROAD WAITING FOR A TOW HOME.

likely to get a good place. Jenatzy, Keene, Wagner, Christie, Cedrino, Campbell and Lyttle had disappeared.

Shortly after 10 o'clock Lancia appeared, three-quarters of an hour late, but driving in his usual form. It was his eighth lap, and Hemery, Heath, Tracy and Szisz had just gone by, all on their eighth laps. Hemery was two minutes ahead of Heath, or seven minutes on elapsed time, and Szisz was desperately trying to pass Tracy, who was but a few hundred yards ahead of him at the turn.

Nazzari, a lap behind, made a bad turn at the banked curve. His car skidded bodily into the soft dirt, and for a moment it looked as if it might go right over.

White made his fourth and last appearance about this time, limping with his left front tire gone. He got as far as the Vanderbilt entrance below Lake Success, and there abandoned his car. His trouble could not be definitely learned, but it was evident that he had been working his generator and engine at an almost impossibly high temperature, for his earlier rounds had been made in a cloud of thin blue smoke which passed for exhaust. Seemingly, to keep down the weight of his generator, he had carried pressure and superheat beyond the limits which his oil and packings could stand.

On their ninth round Heath was leading Hemery till just east of Lakeville, when the Darracq driver passed him. The duel between these leaders continued through the remaining lap, but Heath was unable to recover his lost ground, and on their final appearance was an eighth of a mile or so behind. Warden on his ninth round came by, then Lancia, ten minutes behind his expected time, then Tracy.

Evidently the race for third place would be even closer than that for first.

It was now 11 o'clock, and with but two or three cars apparently still in the running it had become impossible to keep home-going spectators off the course.

Five minutes later came the news that Hemery, Heath, Tracy and Lancia had finished in the order named, and that the race was over. It was well it was, for everyone who did not hear the news took it for granted, and nothing could have cleared the roads thereafter.

Making the Turn at New Hyde Park.

PROMPTLY at 6 o'clock numbers of men with red and yellow flags began patrolling the course at New Hyde Park and warning off the cars and bicycles that were still passing, and all knew that the race had begun. The fields of the farmers along the course seemed to have grown a crop of automobiles, for the road was almost lined with them for miles.

Twenty-three minutes after the first appearance of the flagmen a distant roar was heard up the Lakeville road; soon a black speck appeared, which grew rapidly into a big car with a figure 1 painted on its radiator. Jenatzy held the turn closely and at fine speed, his exhaust spurting fire at the people who were pressing down onto the road. Soon after him came, not Duray or Dingley, as expected, but Lancia, and the Italians at the F. I. A. T. camp howled with delight. The De Dietrich was right on his heels, however, and made a good turn.

Wagner was next, and then Dingley, who, although not going as fast as the others, made a wide sweep around the turn. Keene and Nazzari followed, and soon the Locomobile, with the Renault "Bug" eagerly chasing it.

With the exception of Christie, the next men followed in regular order, Chevrolet skidding badly and throwing up showers of oily dirt. Hemery, like Wagner, took the turn slowly, but held close in. Sartori was next, and then scarcely five minutes elapsed before Jenatzy was around again, with Lancia now close behind, having made the round in 23 1-2 minutes. On his next round he came even faster, and lapped many of the others.

At 7:17 A. M. Nazzari came past on his second, and burst his right front tire just as he was straightening out from the turn. The car swerved badly, but he soon brought it back and kept on to the Michelin tire camp a few hundred yards down the road, where a repair was quickly made. Just after he got away Szisz and his "bug" appeared, having made fine time, and looking good for a place. Hemery, too, was running fast.

On the fifth lap Lancia was 15 minutes ahead of Heath, and 20 minutes ahead of Hemery and Szisz. The joy of the Italians at the F. I. A. T. camp was unbounded, and one man offered to bet two to one that Lancia would finish two laps ahead of anyone else. Luckily for himself, he could find no one to take it.

When Hemery and Heath came past on their eighth round, and Lancia had not yet appeared, their faces began to lengthen. But when the missing one finally did arrive he was going like the wind, and their hopes began to rise as they thought that something might yet happen to the others. It did not, however, and it was soon seen that the race was between Hemery and Heath, while Lancia had only a chance for third against Tracy.

After Tracy and Lancia had passed the telephone man shouted that the race was off, and soon a stream of cars was pouring down the course toward New York.

TRACY IN THE LOCOMOBILE GETTING AROUND THE CURVE AT NEW HYDE PARK INTO THE JERICHO TURNPIKE.

THE AUTOMOBILE

VOL. XIII No. 16

Published every Thursday by
THE CLASS JOURNAL CO.,
Flatiron Building, Madison Square,
NEW YORK CITY.

Cable Address - - - - Autoland, New York
Long Distance Telephone - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2.00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 5 o'clock p. m. Monday for the issue of Thursday following.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies Printed in 1904,	- - -	639,300
" "	This Issue, - -	14,500
" "	Since Jan. 1, -	589,500

The Race from Afterwards. As a popular institution, the second great road race in America has secured a success that is little less than marvelous when the brief life of the automobile is considered; to-day, only ten years after the first feeble trials on the public road, the automobile can call out a larger gathering of spectators than ever before seen in the history of sport. Hitherto the record events in point of magnitude and popular interest have been the races for the America Cup, in or about New York Harbor, but even these great spectacles fail in comparison beside the grand carnival of speed that held sway over a hundred thousand people last Saturday.

The contest was thoroughly international, lacking only the presence of an English team to make up the full complement of the five great nations that lead in mechanical progress. It is not a little remarkable that while in yachting and most other sports the Anglo-Saxon stands supreme; in this new game of science and skill the Latin races are first. It is all very well to proclaim that America will in time excel in this as in many other competitions; but all conditions, past and present, indicate that for some years to come automobile racing will be an almost ideal form of international sport, with the odds in favor of the wider experience and the refined engineering materials and mechanical skill of continental Europe as opposed to the greater inventive power and mass production of America.

The attitude of that great non-technical public which as audience measures the success of every contest of sport was distinctly different from that of last year. The attendance was much larger, there was a better understanding of the conditions, and a greater familiarity with the personnel of the race, both drivers and cars. While there are many to whom all such events appeal in but a superficial way as a popular holiday, there is evidently a large and growing number whose interest is direct and permanent. One of the most regrettable details of the race was the lack of sportsmanship on the part of the great majority of the spectators, to the danger of life and the serious detriment of the competitors.

The management of the race, a task whose magnitude and inherent difficulty cannot be appreciated by the casual spectator, calls for high commendation. The course selected proved a good one, and it was placed in the best possible condition. While as a matter of policy in view of future races the Commission lent its aid to the rigid enforcement of the speed laws, every possible opportunity was given to the racing men to test their cars and study the course for several weeks prior to the race. The interests of the residents received all possible consideration at the hands of the Commission, with results which are likely to be apparent in future years The mechanical details of the race—the policing, signaling, starting, timing, telephoning, etc. —were perfectly managed, both for contestants and spectators. The detail that failed, of keeping a clear course, was obviously beyond the power of the Commission. If road races are to continue without fatal accidents to both contestants and spectators some effective means of policing will be necessary, and it is not easy to see how this is to be accomplished by force, owing to the extent of road to be guarded.

In previous races complaint has been made that there was little of real interest in the mere passage of cars at varying intervals, but the telephone system has effected a marked improvement in this respect, the whereabouts of most of the cars being known to the spectators at the grand stand, thus enabling them to form an intelligible idea of the true progress of the race.

✷

Elimination and Vindication. While the methods of the Vanderbilt Cup Commission in the management of the elimination trial were beyond excuse or palliation, a favorable showing on the part of the three favored cars would undoubtedly have been exploited as a complete vindication of the judgment displayed in selecting them. As events proved, even this shadow of justification failed to materialize, and each of the favored cars showed itself unfit for the company in which it was so arbitrarily placed.

The much discussed front-drive car was not at the line, starting some twenty minutes late; its first and second rounds were made in about half an hour, and its third in an hour and a quarter. While, from all reliable evidence, no blame attaches to car or driver for the final accident, it is a fact that the race was spoiled through the presence of a machine which should never have been selected for such a contest.

The steam car made a most disappointing record—running four rounds in from forty-three to fifty-one minutes each, an average of but thirty-six miles per hour, and then withdrawing. The course of the third car was cut short by an accident in the fifth round, but it had already proved itself unequal to the task. Its best round was made in just under half an hour, and it was three rounds behind the leaders when it withdrew.

It is plain enough now that the touring cars would not have scored under the actual conditions of the race; but at the very most they could not have made a more conspicuous failure than the cars for which they were displaced, and in treating them justly the Cup Commission would have saved itself from a situation whose full measure of mischief has not yet developed.

✷

Speeds Attained in Vanderbilt Race. Much has been said, both before and after the race, as to the maximum speed attainable in 1905 cars over this course, and some conclusions have been reached which seem at variance with the true figures. Exact comparisons of times are usually impossible in races of this kind, owing to accidents and varying conditions; but a careful analysis of selected times will give fairly reliable results. The most obvious point of the present race is that if Lancia had held out for the full ten rounds —and he had the car and the skill to do it —there would have been a brief record of one winner and the rest nowhere. As it happened, the Italian's victorious career was cut short in the middle of the eighth round; but in the first four rounds, timed with marvelous precision to less than half a minute difference between fastest and slowest, he covered 113.2 miles at an average speed of 72.22 miles to the hour. His average for the ten rounds, with no deduction for delays, is 56.50 miles per hour; but the true average, the "mean of means," as used in all computations of ship trials, is much higher—63.44 miles. This same method. the only true basis of comparison, gives Hemery an average speed of 62.40 compared with the ordinary average of 61.47; Heath's speed is 60.99 instead of 60.72; and Tracy's is 57.11 instead of 56.90. Among those who show high average while they lasted are Jenatzy and Cedrino, 63.13; Nazzari, 61.91; and Keene, 60.61.

The best basis of comparison between the

first race last year over the southern course and the present race over the northern course is found in the times of Heath: winning in first place in 1904 and a good second this year. In the first race, with a total length of 302.4 miles, there were deductions for controls, making the true course 284.4 miles, or 1.4 miles more than this year. Heath's actual time from start to finish—deducting time lost in controls—was 5:26:45, as compared with 4:39:40 this year. These figures show an average speed of 52.2 miles in 1904 and of 60.72 in 1905, from which it is assumed that the present course is much faster than the old one.

It must be remembered, however, that while Heath this year had only two or three stops of immaterial length, last year he had two bad delays from tire troubles. The most reliable estimates of these two stops place them at twenty and thirty minutes, and if we deduct fifty minutes from his running time we have 4:36:45 net, as compared with 4:37:40 for the shorter course this year.

A fairer comparison may be made by eliminating the obviously bad rounds—in 1904 there were seven rounds run very evenly in from twenty-five to twenty-eight minutes, giving an average of 27 m. 26 sec. per round; this year eight rounds were run in from 25 to 28 minutes, the average being 27 m. Considering the difference in the distance, this of itself does not show any marked gain in speed this year, and it must be remembered that last year there were no less than twenty stops for controls, with as many starts. Just how many seconds are lost in bringing a racing car to a dead stop from a speed of over 50 miles per hour, and in starting and working up to speed again, cannot be stated with certainty, but, whatever the number may be, it must be multiplied by twenty to allow for two controls on each of the ten rounds of the race, the total running up into minutes.

In Saturday's race there were no controls, no tire troubles, and the sustained speed was interrupted probably not more than twice or three times from start to finish. In spite of the vastly more favorable conditions this year, the times show practically the same for both. Undoubtedly the cars are faster, there was at least one new driver to set a higher pace, and there were comparatively few tire troubles; all indicating that the new course is no faster, and probably even slower, than the old one.

✱

The Future of American Road Racing. The successful outcome of Saturday's race has settled one important question, though there are others recently come to the front which are likely to be disposed of only by prolonged discussion. There is no doubt now that there will be another great road race next fall; motorists and manufacturers alike demand it, the public will welcome it, and there is very little likelihood that the people of Long Island will oppose it. Under such generally favorable conditions, the main point may be accepted without question.

What the prize will be, and who will sponsor the race, are questions still very much in the air. The Vanderbilt cup was won last year by the Automobile Club de France, under a special condition that for this year only it should be raced for in this country; in the future it stands with most other international trophies, held by the club represented by the latest winner, subject at all times to challenge, and—if not defended—going by default to the former holder, donor or some other party specified in the deed of gift.

The attitude of France in the matter of the Gordon Bennett cup and road racing in general leaves good ground for doubt whether the Automobile Club de France will care to give bonds for $3,000, take the cup, and manage a race for it in 1906. In the not unlikely event that the A. C. F. declines the cup, it will by default remain in the custody of the American Automobile Association, in which case there will doubtless be an effort made to hold a third race next year on Long Island.

As the direct result of the unceremonious elimination of winning cars in the cup trial, the racing situation has been complicated by the action of E. R. Thomas, of Buffalo, the builder of one of the rejected cars. At an informal meeting in New York, on the day after the race, Mr. Thomas made the offer of a cup costing $2,000, with a brief outline of his plan. He suggested the name "Home Industry Cup," the general conditions to be established by a committee of manufacturers, which committee should name a special committee of men having no connection with the manufacture of automobiles, this second committee to have entire charge of the management of the race. No definite action has been taken, but there is little doubt that the proposal will receive the support of many manufacturers.

Apart from the issue of the elimination trial, the question of the proper terms and conditions for future road racing must in any event have come up for discussion at this time; but, as matters now stand, it must give place to the more pressing question of who shall have control of the racing?

Had the Racing Board of the A. A. A. lived up to the professions made when it was reorganized after the Florida fiasco last winter, there would be no question as to its continuance as the recognized authority in American automobile racing. Now that the result of the Vanderbilt cup race has thrown as deep a shadow on its good judgment as the selection of the American team cast on its good faith, there can be no question that its usefulness has passed. Excuses it had none to offer, and no amount of future promises after the incidents of the past month are partly forgotten can restore a reasonable confidence in its ability and fairness.

While nothing definite has as yet developed, the indications are that the control of the next road race will pass into new hands that will treat it as it deserves, as a technical rather than a sporting proposition. Following this must come a radical revision of rules and conditions, probably along lines similar to those recently suggested by Mr. S. D. WALDON, and now under consideration by the National Association of Automobile Manufacturers. The technical points associated with this change are far too many and too complicated for discussion at the present time, but upon their successful solution depends the immediate future of automobile road racing, with all its possibilities of good in the development and improvement of the American touring car.

WASHINGTON CLUB'S DEBUT.

Gathering of 250 Motorists at Housewarming Hears District Authorities.

Special Correspondence.

WASHINGTON, D. C., Oct. 12.—The Automobile Club of Washington made its debut on the evening of October 9, with a "housewarming" and smoker, at its temporary quarters in the Villa Flora Club on the Brightwood road. Members and guests to the number of 250 were present and more than 100 cars were packed on the lawn in front of the clubhouse. A reception committee consisting of Captain Caverly, F. R. Gordon, Leroy Mark and Frank Edmonds, welcomed the guests. The clubhouse was in gala attire, a feature being the illumination of the lawn with hundreds of electric lights strung on wires from tree to tree. After every one had been made acquainted with the others, the guests were conducted to the grill room, where an elaborate luncheon was served.

When the inner man had been satisfied and the air was blue with the smoke from fragrant Havanas, President Duvall rapped for order, and in a witty speech introduced in turn Commissioner Macfarland, president of the Board of District Commissioners, his associate Commissioner West, who has immediate supervision of the local automobile regulations, Major Sylvester, chief of police, and Judge Kimball, who tries all automobile cases in the police court.

Commissioner West pointed out that the automobile regulations now in force here are just and reasonable, and while they might not be perfect, he and his associates on the Board of Commissioners would welcome any suggestions from the club that would tend to make them more nearly so.

Commissioner Macfarland told how his board had labored faithfully to make the regulations as equitable as possible, and Major Sylvester made a big hit by saying that in his opinion all vehicles should be made to carry numbers and lights at night, the same as automobiles. This very thing has been a thorn in the side of the local automobilists ever since the regulations were first drafted, and now that Major Sylvester has come out boldly with a recommendation that all vehicles be treated alike in this respect, automobilists hope the commissioners will take the hint and amend the regulations so as to include all vehicles in the numbering and lighting provisions.

Fifty-eight automobiles are now registered with the city clerk in Tampa, Fla.

Weighing in the Cars.

JUST inside the northeast angle of the famous Albertson S curve is a snug farmhouse with well-kept green lawns, a lane some fifty yards long leading from Willis avenue into the barnyard and orchard. A row of sheds and stables flanks the north side of the yard, and under one shed is a set of hay scales. These were accurately adjusted in advance, and at 10 o'clock on Friday morning all was in readiness for the weighing-in. There were present Messrs. Miles, Birdsall and Riker, in charge of the ceremonies. The limit of weight for a car, stripped of seats and cushions and with tanks empty, is 1,000 kilograms, or 2,204 pounds; an arbitrary allowance of 15 pounds is made for a magneto, if carried. As the magneto of to-day weighs from 26 to 30 pounds, many cars found it necessary after the first weighing to remove the magneto temporarily, thus gaining the difference between the actual weight and the nominal 15 pounds.

A number of touring cars were drawn up along the Willis avenue entrance about 11 o'clock, and quite a group of spectators, nearly all motorists with a small mixture of country people, was gathered in the barnyard. First on the scales was the Christie car, weighing in easily at 2,094 pounds; following her came Heath's Panhard, passed by the weighers as on the limit—2,219 pounds with magneto. Duray came next with his blue de Dietrich, having a margin of 13 pounds—2,206, including magneto. The White steamer weighed in at 2,180 pounds. Three of the Fiat cars came over together from Poirrier's, No. 4 driven by Lancia, No. 8 driven by Nazzari and No. 12 by Cedrino. Lancia and Nazzari represent different types, each striking in his way, the former big, broad-shouldered and burly, with round full laughing face; the latter, once chauffeur to the Queen of Italy, tall, very well built, with no superfluous flesh, and face both handsome and interesting. The three cars each weighed in at 2,182 pounds without magneto.

Foxhall Keene's Mercedes, No. 5, was on the ground early, with Luttgen, the clever German who drove the Wormser Mercedes last year, in charge with an assistant. The car was drawn aside under the apple trees and pretty well pulled apart, the rear wheel being removed and other parts adjusted; all the forenoon and late in the afternoon Luttgen worked patiently over the car, regardless of the many idle spectators about him. Jenatzy's car weighed in at 2,202 pounds, and her owner started back to his quarters, returning later in a touring car to watch the weighing. As a car came off the scales the tanks were filled and it was run out on to Willis avenue, where it was speeded up and down to test the brakes. An eager crowd, including many ladies, clustered about each car as it stopped in the yard, followed it under the weighing shed and then started on a run for the road, lining up closely on each side to watch the brake trials; as the car whirled off after the ordeal the crowd followed Messrs. Birdsall and Riker back to the barnyard, repeating this proceeding with every car.

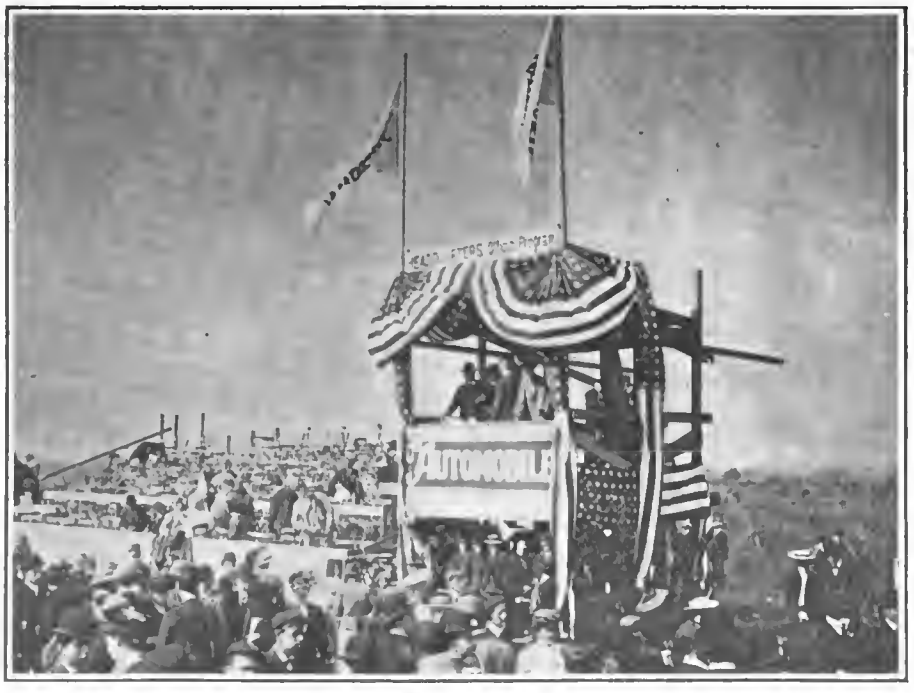
Early in the afternoon the smaller Pope-Toledo came up, Dingley and his mechanician both bareheaded, and passed at the limit, 2,204 pounds. Warden's Mercedes, with her owner in charge, showed 2,226 pounds and was shoved off the scales for the removal of her magneto, after which she was passed at 2,204. Szisz' Renault was passed at 2,202 pounds, including the magneto.

Among the crowd about the scales was a young man with hands in pockets, a pipe in his mouth, an old overcoat over his round, stooping shoulders, and an old cloth cap of no particular *marque* on his head. He stood about, looking over the cars in an aimless way, his whole appearance suggesting that he had just alighted from off a load of turnips or cabbages, moved only by idle curiosity and knowing nothing and caring less about automobiles. After a time he went over to No. 18, the Darracq car, and started her for the scales. He was Hemery, under whose old cloth cap was a plan of campaign which, as events proved, upset the calculations of all who relied on mere power and speed to win the Vanderbilt cup. Weighed, with tools and duffle in place, No. 18 passed at but 2,060 pounds, while her mate, Wagner's No. 6, showed but 2,028 pounds. The actual stripped weight of these cars is but 1,860 pounds.

The anti-hoodoo car, Stevens' Mercedes No. X, was passed at 2,219, the limit; but when Keene's Mercedes, No. 5, last came to the scales she weighed 2,226 pounds. Luttgen wheeled her out of the way, and with his mechanician started to cut part of the ropeyarn service from the springs and to remove the leather dust-guards from the joints. Finally he was told that if he removed his magneto he would be allowed to replace it after weighing; this was done and the car passed at 2,204 pounds.

The arrival of the larger Pope-Toledo, No. 15, with Lyttle at the wheel, aroused new interests, as it was understood that the car was practically a new one and not the one used in the elimination trials. Her very long frame looked to be but a frail and insecure foundation on which to carry a big six-cylinder engine for a distance of nearly 300 miles at racing speed. She showed 2,224 pounds on the first weighing, and with some disappointment Lyttle removed the hood, which of course was unused in the race; this let her in at the regular 2,204 pounds.

Chevrolet was astounded at the weight of his Fiat until some one suggested that his tanks might not be empty; he ran the car back to the orchard and proceeded to draw off some twenty gallons of gasoline; after this the magneto was removed and she passed at 2,204. Sartori's Fiat weighed in at 2,192, and then the scales were cleared and the rear doors of the shed opened to admit of a load of hay, weight not given. Most of the cars came up in tow of touring cars, but each after the brake trial left at speed. During the afternoon many well-known motorists and trade men were present. The only car not weighed was the unfortunate Locomobile, in the hands of the doctors at the Lakeville quarters; she was expected at 8 P. M., but did not reach the scales until long after midnight.



PRIVATE STAND OF THE AUTOMOBILE, JUST WEST OF GRANDSTAND

THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, OCTOBER 26, 1905—CHICAGO No. 17

TRANSFORMATION OF A BUFFALO LANDMARK.

From Our Own Correspondent.

BUFFALO, Oct. 16.—One of the few remaining historic residences of Buffalo is now in the hands of contractors engaged in transforming it into office quarters for the E. R. Thomas Motor Company, which is also building one of the largest motor factories in this part of the country.

The old residence is known as the Porter House, and historians have classed it as the most storied in associations of all places on the Niagara River front, and the most historic building in the city. It was erected in 1816 by General Peter B. Porter on the strip of land between Niagara street and the Niagara River, a short distance below Ferry street, and is to-day not the oldest house in Buffalo, but the best preserved of its age.

General Porter occupied it until 1836, entertaining among his guests General Lafayette, John Quincy Adams, DeWitt Clinton and other distinguished men, including Red Jacket and every prominent Indian of the vicinity. Passing into the hands of Lewis F. Allen, the house continued for many years to be one of distinguished hospitality. Mr. Allen's guests included Henry Clay, Daniel Webster, General Scott, General McComb and others equally famous; and a member of his household for a time was his nephew, Grover Cleveland, Buffalo's second president of the United States.

The house has been shorn of its beauty and surrounding estate, first by the construction of the Erie Canal, then of the

HISTORIC OLD MANSION IN BUFFALO, BUILT BY GENERAL PORTER, NOW REMODELED INTO OFFICE FOR THOMAS MOTOR COMPANY.

railroads, and later by the sale of land and the construction of buildings.

The modern factory which the Thomas company is building obstructs the historic mansion from view on the front side, the buildings completely surrounding it except on the bank overlooking the river. The house will have little of its original appearance when the work of transforming it into an office is completed. The roof has been covered with sheet metal, it is being given a coat of elaborate paint, and is being otherwise changed, both inside and out.

To commemorate the structure's historic associations, the Niagara Frontier Landmarks Association will soon place a bronze tablet in a conspicuous place, either just inside the entrance or on the outside front wall, marking it and recalling some of the incidents connected with it.

It is interesting to note that the Porter House is just two blocks south of the scene of the heavy fighting of the first battle of Black Rock in the War of 1812. Colonel Bishop was mortally wounded in the fight when the British were driven from the vicinity and evacuated the Porter House, of which they had taken possession.

General Porter, who built the old house, was Secretary of War under President John Quincy Adams. He was also a member of Congress, during which time he was on the committee on foreign affairs.

A Bee Up His Sleeve.

"Ever get a bee up your sleeve when driving an automobile?" asked a suburbanite, who has abandoned railroad travel for the pleasure of coming to his office in his motor car every morning. "Well, I did the other day, and I tell you it took nerve to keep my hand on the wheel long enough to bring the machine to a stop, while all the time that bee was working away on my arm worse than the biggest Jersey mosquito. I was moving along at a pretty good pace just above New Rochelle, when the current of air raised by my machine evidently caught this early bee just at the right angle to waft him halfway up my sleeve. He didn't like it a bit, and neither did I, but that bee gave me the hottest fifteen seconds I have ever experienced in an automobile.—New York *Times*.

Four large automobiles were purchased here yesterday by R. H. Boyd, president of the Penny Savings Bank of Nashville, Tenn., for use in a new street line there for negroes. A company, recently incorporated there as the Union Transport Company, with a capital of $25,000, is organized and owned by negroes, and will be run in the interest of negroes, in self-protection against the treatment which the· receive on the street railways in the city, where they are permitted only to sit in certain separate seats, and where the conductors have power of police to remove them, even from those seats, if they see fit.—New York *Post*.

Denaturized Alcohol in Germany.

IN view of the increasing importance of alcohol as a fuel for internal combustion motors the following information regarding denaturized alcohol will doubtless be interesting to automobilists. The data is contained in a consular report furnished the United States Department of Commerce and Labor by Consul-General Mason, at Berlin.

The total output of alcohol in Germany for the year ending August, 1904, was 101,823,470 gallons, by far the greater part having been produced from potatoes. Comparatively small quantities of spirits distilled from grains, beet molasses, cherries, grape-must, plums and so on were used mainly for drinking and for the manufacture of medicines, perfumes, vinegar and other food preparations. It is the alcohol produced from potatoes, however, that is used for a vast number of industrial purposes, such as lighting, heating, and as a motor fuel. The consumption of alcohol in Germany for motor fuel has, however, decreased rather than increased during the past two years, not more than one per cent. of the total product, or 951,000 gallons, having been used for this purpose during the last year.

Alcohol is used duty free in Germany for industrial purposes after having been denaturized in the presence of a government official. The denaturization, which consists of mixing with the alcohol one or more of the substances prescribed by the very elaborate statutes covering the subject, may be "complete" or "incomplete," according to the purpose for which the spirit is to be used. Complete denaturization is accomplished by adding to every 100 liters (26 1-2 gallons) of alcohol 2 1-2 liters of "standard denaturizer" made of 4 parts of wood alcohol, 1 part of pyridin (a nitrogenous base obtained by distilling bone oil or coal tar), and 50 grains to each liter of oil of rosemary or lavender. A slightly different method consists of adding to every 100 liters of alcohol 1 1-4 liters of the "standard denaturizer" and two liters of benzol. During the year 1903-4 a total of 26,080.505 gallons of alcohol denaturized by these processes were used for heating, lighting and commercial purposes in Germany.

Incomplete denaturization is employed where the alcohol is to be used for special purposes for which the completely denaturized spirit would be unsuitable. The process is such as to render the spirit unfit for drinking, and varies according to the purpose for which the spirit is to be employed. For instance, for the manufacture of varnishes and inks, the alcohol is denaturized by the addition of oil of turpentine or of animal oil.

Alcohol for the manufacture of soda soaps is denaturized with castor oil. Denaturized alcohol is used in the manufacture of celluloid and pegamoid. Alcohol for the manufacture of ethers, aldehyde, argarcin, white lead, bromo-silver gelatins, photographic papers and plates, electrode plates, collodion, salicylic acid and salts, aniline chemistry and a great number of other purposes is denaturized by the addition of sulphuric ether, benzol, oil of turpentine, or animal oil.

The quantity of incompletely denaturized alcohol used in Germany last year was 10,277,569 gallons. In addition to the completely and incompletely denaturized alcohol used for the purposes mentioned, 479,138 gallons of pure, undenaturized alcohol were used, duty free, for government or public purposes, such as government laboratories, hospitals, and for the manufacture of fulminates and smokeless powders.

The cost of producing alcohol in Germany varies with the locality, and also varies from year to year, in accordance with the yield and the consequent market price of the potatoes, grain and other alcohol-producing vegetables. In Prussia during the past year the price of fully denaturnized spirits of 90 or 95 per cent. strength has ranged from a little more than 32 cents to 45 cents a gallon. During the two years of 1901-2 and 1902-3, when the potato crops were large, there was a great over-production, and the price fell to 15 and 17 cents a gallon—cost price, or even less. At the present cost of denaturized alcohol it is anything but an economical fuel for motor use in Germany. In Belgium there are two industries that owe their existence to the fact that denaturized alcohol is not taxed. These industries are the manufacture of ether and of artificial silk, these commodities requiring the annual use of 2,500,000 gallons of denaturized alcohol. Since 1906 the demand for alcohol has increased thirteenfold, the increase being due principally to the industries mentioned.

What Hapened to Brown.

Dr. Gailey M. Brown was seriously injured in a peculiar automobile accident. He was working a crank to start the machinery when a heavy revolving wheel flew back against his face, knocking four front teeth loose, fracturing the upper jaw bone and rendering him senseless for several hours. —Muskegon dispatch to Sault Ste. Marie *News*.

Consul-General Guenther, of Frankfort, Germany, reports that the transportation of benzine by rail in Germany is subject to certain restrictions on account of its inflammability. The owner of an automobile recently shipped his machine by rail from Munich, where he had taken part in the Herkomer races, to his home in Augsburg, but concealed the fact that the reservoir contained about 200 pounds of gasoline. For thus violating the railroad police regulations he was fined 10,000 marks ($2,380).

A Ride Through Rock Creek National Park.

Special Correspondence.

WASHINGTON, D. C., Oct. 23.—The 1,700 automobilists who constitute Washington motordom will agree with a number of landscape painters of international reputation in the opinion that Rock Creek National Park is the most picturesque section in the neighborhood of the National Capital.

This fine public reservation of several thousand acres, with more than fifteen miles of smooth roadway, lies just on the northwestern edge of the city, stretching for several miles along both banks of a meandering stream from which it derives its name and affording fascinating vistas of attractively beautiful scenery. The landscape architects who laid out the drives, planned the bridges and located and designed the various animal houses for the "zoo," wisely preserved the wild, natural beauty of the heavily-wooded, rocky banks of the stream, so that there is a charming contrast as one turns immediately from the thickly built-up residential section of the city to the cool, fragrant depths of the little valley. So few are the evidences of the artificialties of man that this magnificent park, which the federal government has given to the city of Washington, and which is so very close to it, seems in no sense a part of the city; when one has descended into it, the spot seems remote and deliciously quiet.

There are a number of entrances, but two are particularly favored by automobilists. One is by way of Cincinnati street and into the Adams Mill road, which leads directly into the park. The other is a short distance west of Sixteenth street extended, which is Washington's most famous boulevard. Taking either of these routes, the automobilist drops sharply from the plateau, whence the capital is seen in all its architectural splendor, into the magnificent stretch of woodland. A portion of the park near these two entrances is devoted to the National Zoological Garden, within the confines of which is a collection of mammals and birds second only to New York's famous Zoo. Passing the Zoo, the automobilist finds a number of attractive roadways that skirt closely the boulder-strewn creek in its circuitous journey toward the Potomac at Georgetown. Now and again he is led across the creek upon a boulder bridge built with rocks taken from the stream and harmonizing fittingly with its surroundings. Everywhere he can see groups of noble oaks, stately elms and lofty pines, while the jagged rock walls of the creek, rising sheer from its pebbly bed, are ever and anon discernible through the openings betwen the trees as the car flits by.

IN FRONT OF OLD PIERCE MILL.

ONE OF THE NATURAL ROCK BRIDGES.

Every turn in the road brings new beauties into view. In the distance a stone building is seen, and soon the car halts in front of it. A park policeman will tell you it is the old Pierce Mill, built in 1774 and still as substantial as the day it was completed. For many years its big water-wheel turned the mill stones that ground into flour the wheat and corn of the plantations for several miles around. The wheel is idle now, but the splendid state of preservation of the building occasions much surprise and admiration for its builders.

Leaving the old mill behind, the automobilist pilots his car over a succession of little rustic bridges, built of timbers cut in the park, and which look as if they existed there naturally. Beyond them is an old ford across the stream from which the car emerges to plunge suddenly into a wild, tangled forest, the very heart of this wonderful spot of nature. Here one is prone to alight from the car for a few minutes to get very close to nature, where he may inhale the fresh fragrance of the dank earth and gaze long at the lofty pines.

FORDING ROCK CREEK IN THE PARK.

One drive through this park is enough to fire the heart of the most experienced automobile tourist, and it is not on record that any motorist was ever satisfied with only one ride. The ride never becomes tiresome, for new beauties are discovered upon every visit, no matter how many times one tours the park.

The final plans of the board of control in charge of the park contemplate the purchase of several additional plots of ground, which will add several hundred acres to the reservation. Some time in the near future the park will probably be stocked with pheasants, swans and other fowl.

GROWTH OF ALBANY REGISTRATION.

Special Correspondence.

ALBANY, Oct. 23.—Since the enactment of the first automobile registration and licensing act of 1901, in New York state, no less than 22,800 motor vehicles have been registered and licensed. The annual record in the office of the Secretary of State at Albany is as follows: 1901, 954 certificates or licenses issued; 1902, 1,083; 1903, 6,779; 1904, 6,417; 1905, to date, 7,547. The largest number registered in any one month was 1,500 in May, 1905. The number of professional drivers or chauffeurs registered is 8,000.

At the recent convention of American Road Makers at Port Huron, Mich., Governor Warner of Michigan said the state would spend $60,000 on road improvement next year. Thirty thousand dollars has been spent on roads this year. For every 50 cents a farmer pays for good roads in Michigan other interests pay 80 cents. In the past two years the state has done more for good roads than was done in twenty years before. The convention delegates agreed in a resolution that there should be a monster good roads convention, attended by automobile and farmers' clubs, granges, and other associations in any way interested in good roads. The following officers were elected: James H. MacDonald, Connecticut, president; W. S. Dickinson, Massachusetts, secretary; and Joseph W. Hunter, Pennsylvania, treasurer.—Chicago *Inter-Ocean.*

Maintenance of Country Roads.

(Concluded from page 375, issue of October 5.)

SOMETIMES the expression is used that permanent roads, if really permanent, should not need repair. This absurdity arises from the misconception of what is meant by permanent improvement. Not only roads nor any material structure can be classed as permanent in the sense that such view implies. Modern road building accomplishes permanent results as compared with the old methods displaced thereby, but not permanent in that conditions provided are not subject to change. When we speak of permanent roads we refer to the manner of construction, as compared with old methods that secured merely temporary results.

The moment the improved road passes from the finishing touches of the builder the destructive forces of nature begin their work, and result in loss of the material of the road and change in condition of its surface.

Chemical and Climatic Action.

First. Loss results from chemical action. This loss is constant and ever varying in its process, although in its results it is very slight as compared with some of the forces mentioned below.

Second. Loss results from climatic action. This loss is moderate in well-constructed and well-drained roads, and considerable in those that are poorly constructed. In all cases loss from climatic action is considerably increased where extremes in temperature are great and frequent, especially when these changes pass many times during the season from above to below the freezing point and the reverse.

Third. Loss results from abrasion or wear by hoofs and wheels. Sufficient abrasion to provide a certain amount of binder from the material of which the surface of the road is constructed is necessary to its permanency. If this binder is not provided the surface of the road will ravel, a word used by road builders to designate the loosening effect of travel on a road surface that has not sufficient cementing quality. This raveling of road material that is deficient in cementing quality is often observed in dry weather. There is, however, a certain amount of wear necessary for the best maintenance of the road surface in good condition, that amount depending on the quality of the material itself. In and near cities the loss from abrasion, wearing of surface and destruction of material from locked wheels and heavy traffic is very great. Rural roads, exempt from heavy travel, especially heavy travel during inclement weather, have but slight loss from traffic, the proportion of loss due to abrasion being of small amount when compared with the loss that results from the cause described next below.

Fourth. The greatest loss, and especially to purely rural roads, is from the washing effect of violent rains, particularly on grades, removing the finer material that binds the larger pieces together and results in the destruction of the solidity and smoothness of the surface.

"The maintenance of a roadway," it has been said, "is the keeping of it as nearly as practicable in the same condition as it was when originally made. The repair of a roadway is the work rendered necessary to bring it up to its original condition after it has become deteriorated by neglect to maintain it."

There is a wear that cannot be provided for by what is termed maintenance alone. Any architectural or engineering structure will, with the lapse of time, develop defects incident to insufficient care in construction. Wear ensues in a road, even subject to the best maintenance, that requires replacement of materials that is more properly termed repair, although there may not have been neglect in maintenance.

To preserve the condition and serviceableness of any highway will require the addition of materials to its surface in proportion to the losses classified above.

Care of Roads in Europe.

In the care of the improved roads of Europe the plan of prompt remedy of defects, or replacing loss from wear and other causes, so soon as noticeable, has become the universal rule. In this country, however, the opposite rule of delaying repair to that point where its necessity is insistent is almost equally universal. The difference arises largely from the difference in the cost of labor, but it is undoubtedly true that the European method of prompt repair will become more and more the rule in America as the principles of good road maintenance become better known and are fully appreciated on this side.

The greater proportion of the improved roads of Ohio are allowed to continue without attention until travel has brought them to a state in which the surface condition becomes ruinous and unfit for travel. When the destruction of the road surface reaches the stage that remedy can no longer be delayed, loose material is dumped on the surface with no attempt at screening and without system, except, perhaps, giving an undue amount of crown to the extent of ridging along the middle of the road. The finer part of the repair in large proportion sinks through the coarse to the old road surface and allows the larger pieces to remain on top, to be avoided in great degree by travel, and when subjected to travel, to be displaced from their proper position, either becoming round from abrasion and from this condition less and less capable of being compacted into a smooth and firm road surface, or else they are knocked into the ditches to interfere with the drainage.

Depressions on their first appearance should have the mud and dust removed and be filled with repair on which enough fine dirt or dust is placed to cement the repair into a solid mass.

If the method of covering the surface with a layer of repair is followed the coarser material should be covered and filled with fines and the whole rolled to a firm and smooth surface, so that travel will compact the mass, rather than round the material and destroy its edges that are necessary to its thorough compaction.

Limestone Roads of Ohio.

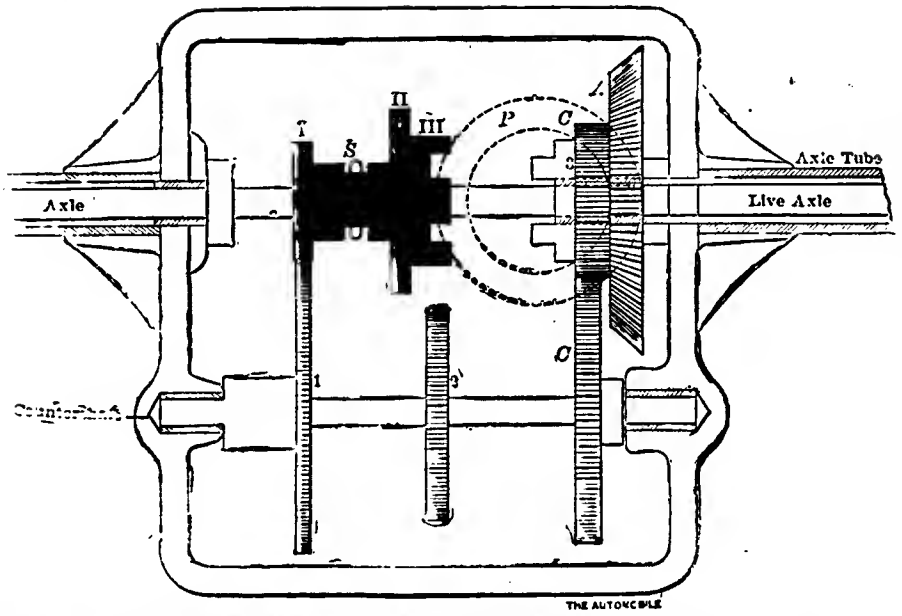
The greater proportion of the limestone roads of Ohio are constructed by placing loose, unscreened material on the surface. When this method is followed travel produces three hollows along the lines of travel, the center formed by the single horse driving, and one on each side by double teams. Outside of these hollows the wheels form two ruts in the loose stone and conditions are produced ruinous to the good condition of the road. The hollows and ruts leading the travel along the constant lines, and the wheels cutting deeper and deeper ruts that more and more tend to hold the water and interfere with drainage and destroy the road.

On all roads constructed of loose, unscreened material, the hand rake should be used to fill up the hollows and ruts as they form with loose stone from the ridges and especially with that thrown toward the edge of the road, in order that the travel may be distributed evenly over the road and eventually secure a smooth, solid surface.

One of the old methods of macadam construction was to secure the compaction of the material without the use of the roller. The loose material was placed on the surface, and whenever it began to rut and firm under the wheels hand-rakes were used to fill up the depressions. The process placed the larger stone, brought to the surface by travel, along the former wheel tracks and tended to transfer the wheels to a new line until gradually the whole road surface was compact and smooth. It would be found advisable, so long as the method of loose stone construction is followed in any locality, and it is very prevalent in Ohio, to resort to the raking-in method as the best procedure to remedy the defects resulting from improper construction. The raking in is comparatively inexpensive, and although the method of compaction by travel is an expensive one, when measured by loss to horseflesh and vehicles, the latter expense is materially reduced, the condition of the road vastly improved and the slight expense is amply repaid.

The Ordinary Gravel Road.

The ordinary gravel road is one that requires raking in in order to keep it in condition, and can only be a pleasant and easy driveway by attention in this particular. I refer, of course, to the road constructed of rounded gravel without sharp edges, and which cannot be reduced to a permanently solid mass. A road machine should never



VERTICAL TRANSVERSE VIEW OF DRIVE AND CHANGE SPEED GEARING OF DARRACQ RACER, LOOKING TOWARD THE REAR, PARTLY IN SECTION.

be used on a macadam surface to secure the filling of the ruts, for the reason that it destroys any bond that may have been attained.

Macadam roads are often destroyed at their termini, and at intersections with clay roads, from having the tenacious clay of the mud roads adherent to wheels passing from the latter to the former, dropped on their surface. This coating of clay inevitably results in a picking-up process, converting the surface into a series of undulations. At intersections and ends of macadam roads where this condition is likely to ensue three-inch stone may be placed on the surface of the connecting clay road for a distance of eighty or one hundred feet.

This rough surface, greatly more desirable than the muddy clay surface, will cause the wheels to drop their burden of clay, to the preservation of the good condition of the adjacent macadam surface. The section of clay road thus treated will eventually be cemented into a good surfaced road.

Fuel Filling Tank.

In automobile racing every second counts, and though the distance covered may be hundreds of miles, a single second may win or lose a contest. Therefore everything is done to reduce unavoidable delays to the shortest possible time. The accompanying engraving shows a gasoline can of the kind used by Joseph Tracy, the driver of the Locomobile racer. The can is of heavy galvanized iron, and has a short tube of large diameter for pouring gasoline into the tank, a large filling opening in the tank permitting the fuel to flow into the tank as fast as it will run out of the can. Air is admitted to the can as the gasoline runs out, by means of a tube seen on the left side of the can in the photograph; this tube runs down inside the can, ending at a point near the bottom. Thus when the can is tilted the gasoline cannot run out of the air tube. The mouth of the can is closed by a metal stopper exactly like the stoppers used on large milk cans. Three iron handles are provided for convenience in carrying and tilting. Such a vessel, used in conjunction with an ample filling hole, saves time, trouble and gasoline. The latter item is, in itself, of little importance in a race where speed and endurance are the main qualifications; but when gasoline is spilled more must be brought to replace it, and thus time may be lost, so that avoiding a waste of fuel may often mean saving valuable seconds.

Crankshafts are frequently broken by pre-ignition, due to overheating caused by foul cylinders.

SPECIAL CAN FOR FILLING FUEL TANK OF RACING CAR QUICKLY.

Darracq Transmission.

Some novel features characterize the Darracq racers, one of which won the Vanderbilt Cup race on October 14. Mechanically operated valves are placed in the top center of the cylinder heads. Ignition is by low-tension magneto. The clutch is of the metal-to-metal cone type, and of about the size of the ordinary leather-faced clutch used on a 12-horsepower two-cylinder car.

The most novel feature of the car, however, is the placing of the gear box on the rear axle. The live axle is in one piece and without a differential gear. Below and parallel to it is the countershaft. The large bevel gear turns freely on the axle, and has attached to it a small spur gear meshing with a larger gear on the countershaft. Fixed on the countershaft are two gears which, when meshed with the slider group on the rear axle, give first and second speeds. Third speed is obtained by pushing the slider group still further until it engages the jaw clutch on the bevel gear, thus locking the bevel gear and rear axle together. Reverse is obtained by placing the large gear lever in neutral position and operating a small lever which serves to throw in an idler between the first-speed gears of the countershaft and rear axle respectively.

The accompanying plan drawing shows a vertical section of the gear box looked at from the front. Bevel gear *A*, to which is secured the jaw clutch *3* and the spur pinion *C*, rotates freely on the live axle which passes through the gear box. The bevel gear is driven by a bevel pinion in front of it, which is indicated by the dotted circles *P*. Spur gear *C* drives the countershaft by means of the spur gear *C1*.

Sliding on the squared portion of the axle is the black group which carries the gears *I*, *II*, and the second portion *III* of the jaw clutch. This entire group can be moved along the axle by means of a shipper, *S*.

In the position shown in the drawing, the first or low speed is supposed to be in operation. The bevel pinion *P* drives the gear *A*, and the spur gear *C*, attached to *A*, drives the countershaft by means of the gear *C1*; gear *1* on the countershaft drives gear *I* and by it the axle of the car. By moving *I*, *II* and *III* to the right until *2* and *II* are in line, second place is obtained, and by moving it still further to the right so that *III* and *3* are in engagement, bevel gear *A* is rigidly secured to the axle, thus giving third speed and driving direct.

American entries for the next Gordon Bennett cup race and for the Vanderbilt cup race, wherever they may be held, have already been made by Col. Albert A. Pope and by his son, Albert L. Pope. Each has entered a Pope-Toledo racing car in both events.

When an Englishman throws out his clutch he "declutches" or "unclutches."

New Records on Chateau-Thierry Hill Course.

Special Correspondence.

PARIS, Oct. 2.—Every class of automobile was represented in the Chateau-Thierry hill climb this year, from the 110-pound motorcycle to the five-ton truck. The heavy vehicles opened the contest, being sent away over the mile course with a flying start. Although it was not very exciting to watch a truck with five tons of stones mount the hill at three miles an hour, these events were followed with the greatest interest by the professional automobilists, who now fully realize the importance of industrial vehicles.

The course mounts up from the water's edge at an almost uniform 10 per cent. grade (being slightly less at the beginning and slightly more in the middle), and is perfectly straight for the first kilometer. Past this point there is an "S" bend rather difficult to negotiate, and notwithstanding the improvements which have been made in the road a speed of more than forty miles an hour would be dangerous for the racing cars. At the bottom of the hill a Mors timing apparatus was installed in a little cabin.

There were five competitors in the commercial vehicle class. A Brillié truck with a load of five tons covered the mile in 17 minutes 53 seconds; an Aries wagon carrying three tons went up in 17:20, and a lighter Automoto wagon with a load of less than three tons registered 9:03 2-5 for the mile. Two omnibuses that are at present undergoing tests by the Paris General Omnibus Company attempted the hill. One of these, a Brillié 'bus, into which no fewer than sixty-three persons had been packed (the official carrying number is about forty), went up in fine style in 14:42, and a heavier gasoline-electric Kriéger 'bus, no less crowded with passengers, climbed the mile in 17:03 2-5. The Brillié had come from Paris by road the previous day with a load of passengers, and returned immediately after the races, covering the 110 miles in a remarkable manner for a 'bus constructed for Paris streets.

The class for motorcycles with a third of a litre cylinder capacity had eight starters. The mile was covered by Guippone on a Peugeot in 1:40 3-5 from standing start, last year's time being 1:43 4-5. Anzani on an Alcyon machine was second in 1:49 1-5, and Contant on a Quentin motorcycle was third in 1:52 4-5. Two Peugeot machines were respectively fourth and fifth.

Two tourist classes were run over the mile course, the best time for vehicles costing less than $800 being 5:30 4-5, made by a Boyer car; and the best in the $800 to $1,600 class was 3:25 2-5, also made by a Boyer.

When the afternoon events were run it was announced that owing to the sharp turn just beyond the kilometer line the mile would not be run, all events being decided on the kilometer course. A few years ago, when hill climbing speeds were much lower than to-day, the Chateau-Thierry course offered all that could be desired. Now, even on a 10 per cent. grade, the road must be straight in order to afford the fast machines an opportunity of displaying their speed.

Victory in the racing class for cars weighing not more than 1,000 kilos (2,204 pounds) fell to W. Clifford Earp, who, in the six-cylinder Napier which he drove in the Gordon Bennett race—often spoken of as Macdonald's machine—covered the kilometer from standing start in 38 1-5 seconds (58.5 miles an hour). The English driver, who is doing a little tour in France on the racer, and will attend three meetings before returning home, ran a splendid course.

Stead, on a Mercedes, was not far behind the Napier, covered the kilometer in 0:39 2-5. The time for the Mercedes driven by Faure was 0:46 1-5, and for the Mors driven by Pierron, 0:53 3-5. The previous record for this course was 0:45 1-5, accomplished by Rigolly on a Gobron-Brillié.

In the light car class Hanriot, with a Darracq weighing less than 1,430 pounds, covered the kilometer in 0:41 3-5 (53.7 miles an hour). As he was driving a Darracq car for the first time, his engagement with the firm having only begun on the day of the race, his performance was a remarkable one. De la Touloubre, in a Darracq, entered in the 880 pounds class, registered 0:53 3-5 for the kilometer.

Five tourist classes were run over the kilometer course at racing speeds. The fastest time was 0:55 2-4, accomplished by a Panhard-Levassor in the $5,000 class, beating the old record by one minute. A Radia in the $3,600 to $5,000 class lowered the previous record of 1:32 1-3 to 1:04 3-5. A Fiat covered the kilometer in 1.07 1-5 in the $3,000 to $3,600 class; a Serpollet steamer in the $1,600 to $2,400 class won in 1:13 1-5, and a Svett in the $2,400 to $3,000 class registered 1:40 4-5.

A tri-car race was announced, but owing to a dispute as to free exhaust or muffler most of the competitors refused to start. The motorcycle race for machines of less than 110 pounds was a walk-over for Anzani on an Alcyon in 0:55 3-5 (one-fifth second slower than the existing record), the other competitor refusing to agree to a standing start proposed at the last minute.

Dourdan Straightaway Trials.

Special Correspondence.

PARIS, Oct. 9.—Sandwiched between Chateau-Thierry and the Gaillon hill-climbing contest, the Dourdan meeting forms one of the three season's-end racing events held in the neighborhood of Paris. Yesterday W. Clifford Earp renewed his victory of the Sunday before, his 90-horse-power six-cylinder Napier covering the mile, standing start, in 53 4-5 seconds, and the kilometer, flying start, in 25 3-5 seconds.

Entries were not very numerous in the racing section, the Englishman, indeed, having but one competitor in his own class—a 1904 Mercedes, driven by Faure, which covered the mile in 1:08 4-5, and the kilometer in :34 3-5.

The big Napier was not so fast on the mile as the small 110-pound Peugeot motorcycle ridden by Cissac, which got over the distance in :53 1-5, being three-fifths of a second faster than its mighty rival. Cissac's time for the kilometer, flying start, was slower than Earp's, however, being :27 3-5. In the same class (motorcycles of less than 110 pounds), Champoiseau's Peugeot did 59 seconds for the mile and :28 4-5 for the kilometer. In the class for motorcycles from 110 to 550 pounds, Guippone finished first on a Peugeot in :57 for the mile. standing, and :28 for the kilometer with flying start. Anzani was second on a Buchel in 1:08 4-5 and :34 2-5 respectively.

In the light car class speeds were not up to either that of the little motorcycles or the heavy racers, Hanriot on a 400 to 650 kilos (881 to 1,432 pounds) Darracq registering 1:03 2-5 for the mile, standing, and :29 2-5 for the kilometer, flying. A Darracq driven by De la Touloubre in the 250 to 400 kilos class (550 to 881 pounds) registered 1:13 1-5 and :38 4-5.

A portion of the road on the Dourdan circuit runs through a forest, and dries out

CLIFFORD EARP IN SIX-CYLINDER NAPIER, WINNER IN RACING CAR CLASS IN CHATEAU-THIERRY AND DOURDAN EVENTS IN FRANCE.

GENERAL VIEW OF START IN CHATEAU-THIERRY HILL CLIMB, LOOKING IN THE DIRECTION OF DEPARTURE OF THE CARS.

but slowly. Although Sunday remained fine, the road there was still a trifle damp, which, together with rising ground and a slight head wind, tended in a small degree to reduce speeds. Tourist classes were very well filled, and included all varieties of vehicles from motorcycles to $7,000 cars.

FRENCH CONTESTS FOR 1906.

French Club Decides Not to Compete for Vanderbilt Cup Again.

Special Correspondence.

PARIS, Oct. 9.—It was expected that important decisions would be arrived at by the Automobile Club of France at its meetings last week regarding the program for next year. The committee has, however, passed only a few general resolutions, leaving to future meetings the labor of arranging a more detailed program.

It was decided that whatever may be the result of the Vanderbilt Cup race, the club will not compete for this trophy next year.

A tire competition will be organized during 1906. This, as has already been announced in THE AUTOMOBILE, will consist of a long-distance run in which the competitors will be at liberty to change any part of the motor they desire, but must not touch the tires. It is, in fact, a reversal of present conditions of road racing and reliability tours, the existing regulations regarding motors being applied to tires. It is admitted that the organization of such a competition presents serious difficulties, but the club believes that it can successfully overcome them. So far as is at present known, the event will last two days, each day's run consisting of about 310 miles. An equal number of marked tires will be allowed all competitors, and the motors will be as far as possible of equal weight. Tires may be repaired during the course with materials carried on the car, but none other than those officially stamped can be substituted. As in an ordinary race, the car coming in first will be the winner.

An endurance test of 5,000 kilometers (3,130 miles) across Europe, as proposed by the Marquis de Dion, has also been officially adopted by the club for next year. This monster competition will doubtless be a run from Paris, through France to Italy, Austria, Germany, Belgium and back to Paris, open to all classes of cars. Its organization will certainly be as difficult as that of the tire competition, but the vice-president of the club, an enthusiast in touring events, is convinced not only of its practicability but of its complete success.

No decision has been reached regarding a speed test next year in place of the Gordon Bennett race. Whether the club's Grand Prix will again be brought to the fore, whether some outside event will be encouraged, or whether no road racing at all will be held, is a matter to be settled at the next meeting in a fortnight's time.

European Road Race Question.

Special Correspondence.

PARIS, Oct. 10.—At its last meeting the committee of the Automobile Club of France ignored the question of road racing for 1906. Advice has just been received in Paris from Berlin that the German Automobile Club does not intend to let the subject of an international road race lie dormant, however, for the German club is about to send a letter to the French organization, inviting it to call an international conference in Paris, to which all clubs would be invited, to decide if road racing should be reduced to one great annual event only, suppressing all others. A decision of a simple majority of the delegates would be final.

If the French club refuses to call together such a conference the German club will do so itself, the meeting being held at Berlin in November. Should the French club decide not to organize its own races next year, a choice would have to be made between the Belgian Ardennes meeting and the Florio meeting on the Brescia circuit, Northern Italy, as the one official road race.

French Automobile Regulations

Special Correspondence.

PARIS, Oct. 10.—The Minister of the Interior, who had announced his intention of modifying the French automobile regulations in a record-breaking time, finds himself face to face with an unforeseen difficulty. The members of a parliamentary committee formed in 1903 to report on automobile matters have written to the Minister protesting that they have been passed by in favor of an entirely new body, and asking if this is intended as a reproach upon them.

The 1903 committee has for more than a year been getting together information on this subject, and they point out that in a matter of this nature, in which commercial,

MILITARY WAGON AND SEARCHLIGHT TRAILER BUILT IN ENGLAND FOR USE IN EGYPT.

This unique outfit was constructed to the requirements of Major-General Wingate by the Arrol-Johnston Company. The car has a 20-horsepower, three-cylinder engine fitted with two carbureters, one for gasoline, and the other for kerosene. The wheels have sheet metal sides to prevent sand getting between the spokes, and are fitted with 3 1-2-inch broad, flat tread rubber tires to prevent sinking in the sand. All of the engine and gearing is well encased, so that grit will not get into the working parts. A powerful winch is attached to the car so that it can be warped up steep grades by a steel cable. The trailer is fitted with electric equipment of dynamos and searchlight, provision being made so that the dynamo can be driven from the engine of the car.

legal and individual interests are involved. it is impossible to draw up satisfactory regulations on the spur of the moment. If the 1903 committee takes as long to draw up conclusions as to gather information, it will not give France new regulations for some time to come. If the new committee, on the other hand, has to go over the whole field again, it cannot be expected that it will be ready with reforms in a shorter time. Several members of the newly appointed committee are at present abroad, and are probably not yet aware of their nomination.

Replying to a delegation of the Automobile Club of France, M. Etienne has given assurance that nothing will be done that is likely to injure the industry. On the whole, French automobilists need not have much fear of Draconic changes.

French Tire Tool.

The accompanying engravings illustrate a new tire tool recently patented in France, designed to facilitate the placing of the bead in the rim, a task that is usually accomplished with the aid of miniature crowbars and is always difficult and distasteful.

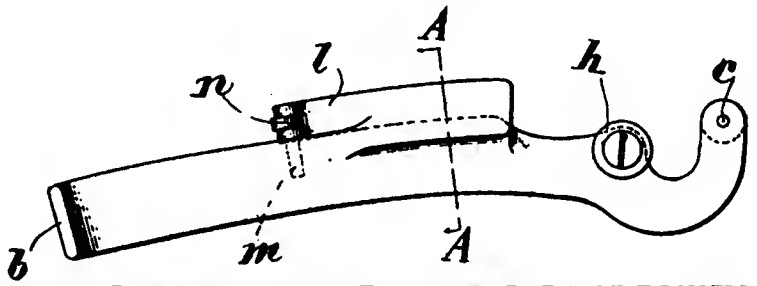


FIG. 2.—SIDE VIEW OF TIRE TOOL, SHOWING HOOKED END, WITH ROLLERS.

The new tool consists of a main forging *A*, Fig. 2, having formed integral with it a hooked member at one end and a handle *b* at the other. At the end of the hook is a roller *c*, in which is a groove to fit over the edge of the rim. A second roller *h* is mounted on a pin on the opposite side of the tool; this roller is to lift the edge of the shoe to a level with the edge of the rim. Back of the second roller is a guide *l*, fitted at its rear end with a roller *n*; *m* is an extension of the pin on which roller *n* is mounted.

The operation of the appliance is shown clearly in Fig. 1. The tool is placed in the position shown and is held in place at one end by the grooved roller and at the other end by the downwardly projecting pin *m*. Roller *h* lifts the edge of the shoe to the proper height, and as the tool is pushed around the rim, hooked end first, the bead of the shoe is pushed over the edge of the rim by the guide *l* and dropped into position.

Fig. 3 shows the pin *m* in engagement with the edge of the rim.

When the carbureter and the ignition apparatus are adjusted to the best of your ability, leave them alone, and if the engine still shows less than normal power look for something wrong with the valves.

Foreign News Notes.

Herr Jellineck-Mercedes, talking of the withdrawal of Baron de Caters and Werner from the Vanderbilt race, stated it as his opinion that after the coming season the German Daimler company would not start any cars in purely speed contests, as it intended to devote itself to the furtherance of touring; touring contests being of more direct interest to the buying world at large than speed events, which, after all, are only for the few. These, he thought, have had their day; they helped an industry to huge progressive strides, but now are superfluous.

The principal German automobile show will be held at Berlin next February, under the auspices of the German Auto Club. Enquirers will receive prompt attention from the Secretarial Bureau, at 16 Leipziger Platz, Berlin, W.

A trial of tires and lamps promoted by the Automobile Club of Great Britain, is provisionally fixed for early in February, the place being London. The postponed commercial van tests, which were originally to be carried out last September, will now be started in August of the coming year.

King Edward and the Prince of Wales are patrons of the London Olympia Show to be held November 17 to 25. Three hundred exhibitors have taken spaces, of whom 104 will show automobiles, thirty-six commercial motor exhibits, twenty-six auto boats and the rest carriage work, tires, parts and accessories. Thirty-six foreign firms will be represented in the car section, nine in the commercial and eight in the marine division. The French firms will show their 1906 types and many private buyers will be saved the trip to the Paris Salon in December.

A company has been formed in London to put motor cabs fitted with taximeters on the streets of the metropolis. The London Automobile Cab Co., Ltd., is said to have a capital of $500,000, and has secured the services of Samuel Michaels, who for some years past was president of the London Cab Drivers' Union, as general manager.

FIG. 3.—END VIEW, PARTLY IN SECTION, SHOWING PORTION OF RIM.

A competition of speed indicators has been arranged by the Mitteleuropäischer Motorwagen Verein, of Berlin, Germany, and the Prussian Ministries, and will be held commencing March 31, 1906. Details of the competition may be obtained from the secretary of the Mitteleuropäischer Motorwagen Verein, Berlin W. 9., Linkstr. 24.

C. L. Charley has placed a huge order for 864 chassis with the German Daimler works, of which number 175 will go to New York, 215 to London, 50 to Florence and the rest to Paris, where they are given a home in the Mercedes Palace for the present.

The Automobile Club of Great Britain and Ireland has been busy with its dust experiments again, the latest of which were conducted with about twenty cars on a stretch of road in Berkshire. The cars were run over a measured distance at various speeds and photographs were taken of their achievements in the dust-raising line. The photos provided a definite basis for conclusions, as it is so easy for the naked eye to err. The car that raised the least dust was a 12-horsepower Sunbeam. There can, however, be only a very slight abolition or mitigation of the nuisance until the road surfaces are better laid and better adapted to the traffic.

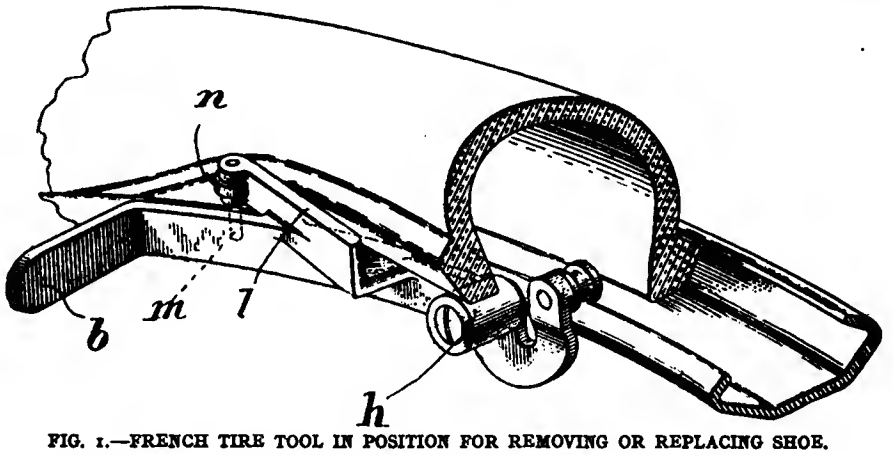


FIG. 1.—FRENCH TIRE TOOL IN POSITION FOR REMOVING OR REPLACING SHOE.

Pierce 1906 Model Touring Cars.

THE Pierce cars may be said to be especially interesting, not alone on account of their mechanical features, but also because a Pierce "Great Arrow" won the Glidden touring trophy, after an excellent run from New York City to Bretton Woods and return. The manufacturers, the George N. Pierce Co., of Buffalo, N. Y., build an 8-horsepower stanhope, which is familiar to the automobiling public; a four-cylinder car of the modern type, weighing 2,600 pounds, with 28-32-horsepower motor; and a 40-45-horse-power car on similar lines, weighing 3,200 pounds. The two four-cylinder cars differ but little except in point of size and power, and the following description applies equally to both machines.

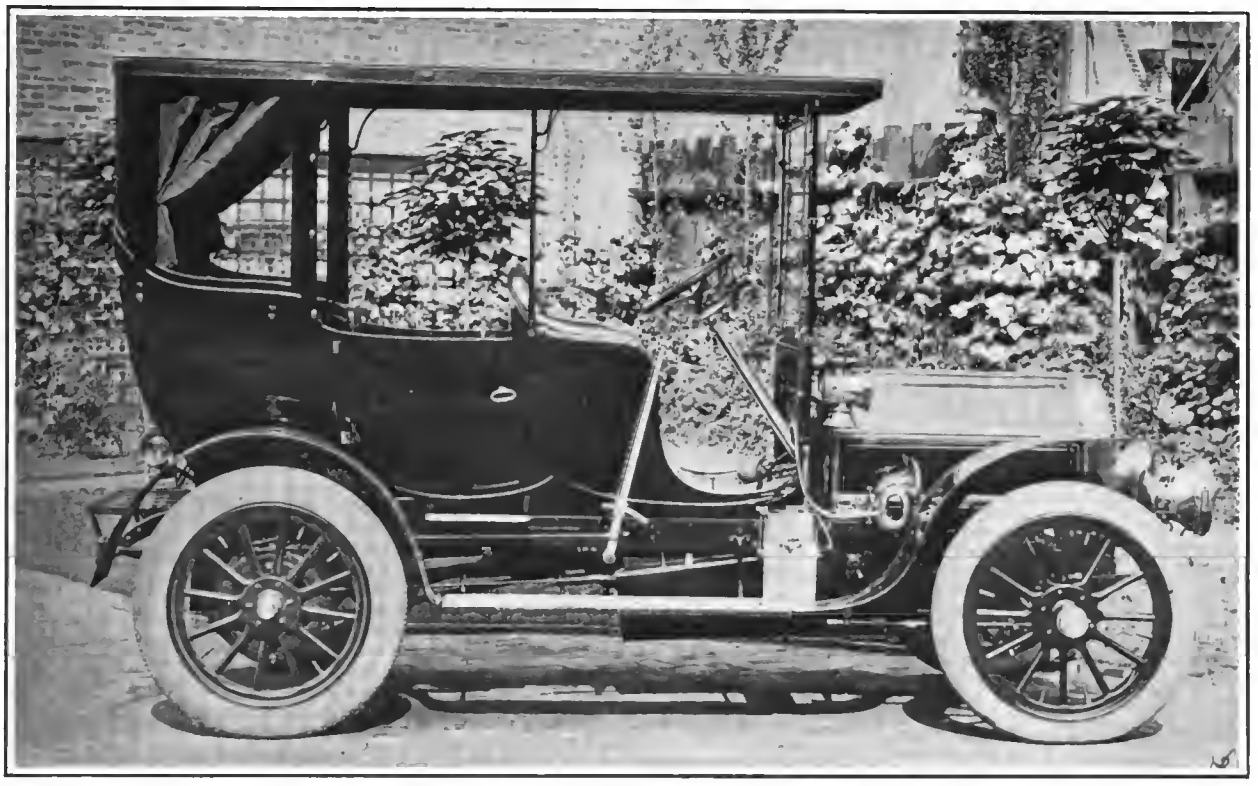
A feature of the Pierce cars is the liberal use of ball bearings. Front and rear wheels, the live rear axle, the differential and the transmission shafts are fitted with ball bearings.

The Pierce four-cylinder cars present no features of startling novelty, but, speaking generally, are built on lines accepted as being correct for cars of their type and power. The four-cylinder vertical motor is hung low, so that when the car is normally loaded the crankshaft, primary transmission shaft and propeller shaft are in line. The universal joints are thus relieved of much of the wear and strain unavoidable when they are normally out of line. Transmission is by sliding gears, a single lever on the steering pillar controlling the three forward speeds and reverse, the drive being direct on the high speed. Propeller shaft and bevel gear drive is adopted. Pressed steel framing is hot riveted together, the joints between the three pressed steel cross members and the side frames being reinforced with large pressed steel gusset plates. Motor and transmission are supported on a sub-frame consisting of two bars of angle steel extending from the front cross member to the middle one. The rear axle is, of course, tubular, with the driving shafts inside; the front axle is a heavy steel forging of I-beam section, with a wide-sweeping downward curve from knuckle to knuckle. Steering knuckles are of the Lemoine type, heavy and substantial.

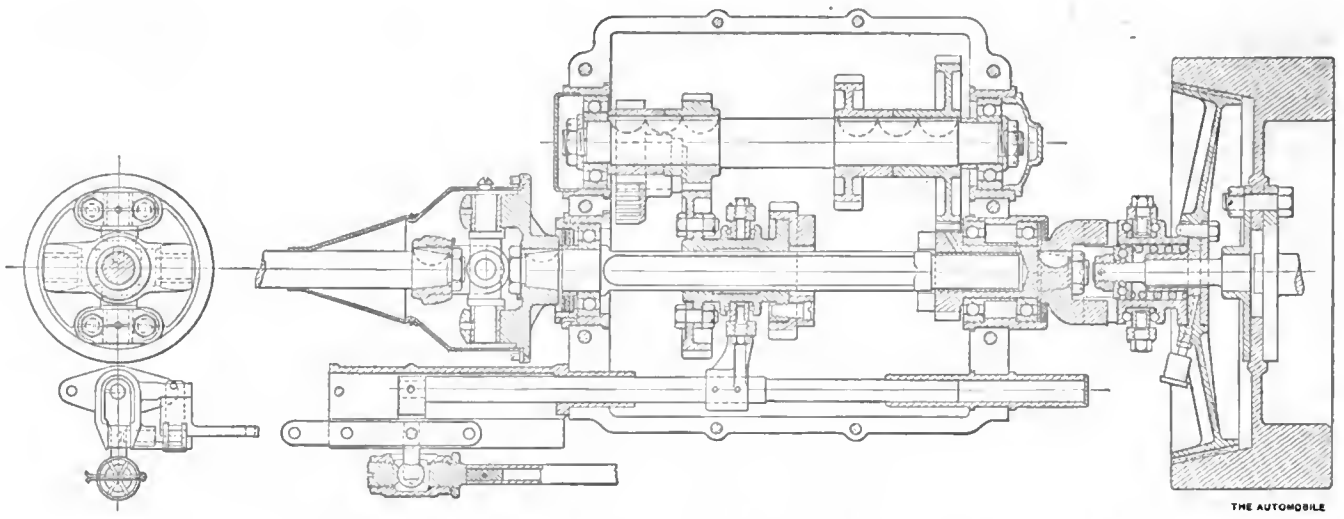
In its details the Pierce car shows few changes from the design adopted for the 1905 car; like many other manufacturers, the George N. Pierce Co. is well satisfied with the general features of the design and construction already in use, and confines changes to a few details that experience has shown to be improvements. The engine is unchanged, and may be briefly described as having four separately cast cylinders with integral heads and water jackets; mechanically operated valves symmetrically placed on opposite sides of the cylinders. The cylinders are very close together—in fact, each cylinder has a flat cast in its side, the flats coming between the first and second and the second and third cylinders, permitting close placing though retaining sufficient water space. The two middle cylinders are a little further apart than the others to allow room for the center bearing of the crankshaft; owing to the closeness of the cylinders, the connecting rod big ends are offset so that the crankpins may be made long enough to give ample bearing surface.

The lubricating system is peculiar and interesting. Holes are drilled in the shaft, so that oil forced into the outside main bearings is carried through the shaft to the end crankpins. The oil feed to the centre crankshaft bearing supplies oil in the same way to the two inside crankpins. A gear pump forces the oil to the bearings somewhat faster than the bearings need it; the surplus runs to the bottom of the crankcase, from whence it is again taken up by the pump and so kept circulating. The crankcase is of aluminum, divided horizontally, and can readily be removed, as the crankshaft bearings are all hung from the upper half of the case. Ignition is by jump spark; the distributer is of the roller type and is placed on the top of a vertical shaft, driven by bevel gearing, between the third and fourth cylinders, counting from the front. An automatic governor, acting on the throttle, regulates the speed of the motor within controllable limits. A small lever working on a notched quadrant on the steering wheel column is used to regulate the governor, altering the maximum speed. The motor in the 1906 car is hung from the under side of the sub-frame; in the 1905 car the lugs rested on top of the frame members.

The transmission gear has been altered so that the drive is direct when the high



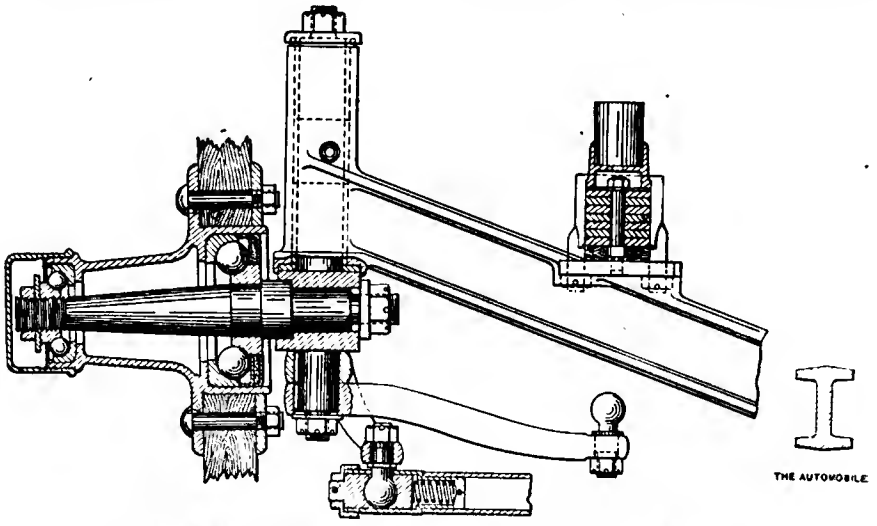
PIERCE 40-45 HORSEPOWER TOURING CAR FOR 1906, WITH SWELL-BACK ALUMINUM BODY FITTED WITH CANOPY TOP.



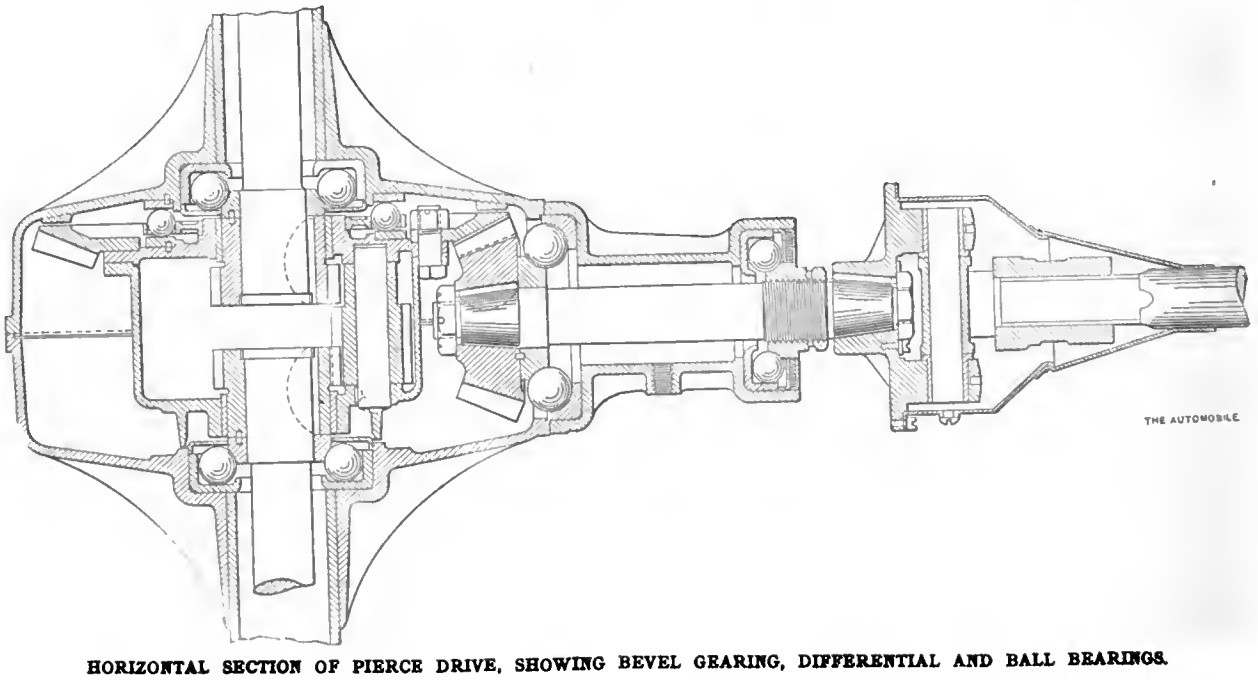
HORIZONTAL SECTION OF PIERCE DIRECT DRIVE TRANSMISSION SHOWING FLYWHEEL CLUTCH SLIDING GEARS AND CARDAN JOINT.

gear is in use—which was not the case with the 1905 Pierce car. The arrangement of the divided primary shaft, carrying the sliding gears, and of the secondary shaft, is clearly shown in the accompanying line engraving of the transmission gear. Hess-Bright ball bearings are used on all the shafts. The high speed is obtained by locking the teeth of a jaw clutch, which causes the primary shaft to run solid and gives a direct connection from the crank-shaft to the bevel gears on the rear axle. An interlocking device is fitted, so that gear changes cannot be effected until the clutch, a leather-faced cone, has been disengaged. An extension on the gear shifting rod is drilled with four holes so spaced that when a given gear is engaged the hole corresponding to that gear will be directly under a pin which is connected to a bell-crank lever in the clutch system. When the clutch is engaged the pin drops into the hole and effectually prevents all movement of the gears until the clutch is withdrawn, when the pin at the same time is raised free of the hole.

The gears cannot be shifted while the clutch is engaged; neither can the clutch be engaged unless the gears are correctly meshed, for as long as the gears are not



ARRANGEMENT OF STEERING KNUCKLE OF 40-45 HORSEPOWER CAR.



HORIZONTAL SECTION OF PIERCE DRIVE, SHOWING BEVEL GEARING, DIFFERENTIAL AND BALL BEARINGS.

fully meshed the pin cannot enter the corresponding hole and the movement of the clutch will be arrested until the gear lever is shifted and the hole brought in line with the pin. Thus gear stripping, from improper meshing or attempting to change with the clutch in, is prevented. If the clutch pedal is released before the gears are in full mesh the pin will merely slide along until the appropriate hole registers, when it will drop in and permit the clutch to enter.

The lever by which the gears are shifted is placed on the steering wheel column under the wheel, instead of in the usual vertical position at the side of the car; there is but one side lever, which is used to apply the emergency brakes which act on drums on the rear hubs. The regular service brakes, applied by pedal, are expanding rings acting inside the same drums, the entire braking effort being applied at the same place. In the 1905 car the foot brake was a band and drum on the differential.

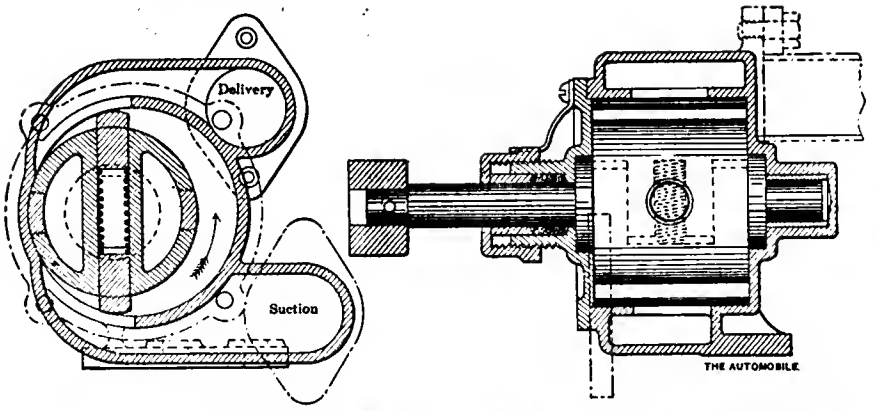
The steering gear is of the thread and nut type, provided with ball thrust bearings. The column consists of three concentric tubes; the outer one serves as a casing and support, and is fixed; the second is for changing gears and carries the gear lever; and the inner one is for steering. The governor regulator is mounted on the column, as is also the ignition timing lever; both can be shifted without taking the hands from the wheel. A switch button on the left side of the wheel permits the instant cutting off of the ignition current in case of sudden necessity.

A newly designed and patented carbureter supplies fuel to the motor; the illustration of this device shows the arrangement of its parts. A small portion of the exhaust gas is led to a jacket surrounding the mixing chamber, so that the temperature is approximately uniform after the motor has been started, regardless of the weather conditions. An auxiliary air valve, normally held on its seat by a spring, is lifted as the motor speed, and consequently the speed of the air passing through the carbureter, increases. Thus the supply of air is proportioned to the requirements of the engine, while the suction at the spray nozzle is kept down to the proper degree. A piston, working easily in a dash-pot, prevents rapid fluctuations of the auxiliary air valve, though permitting sufficiently quick movement to meet the changes of speed of the motor.

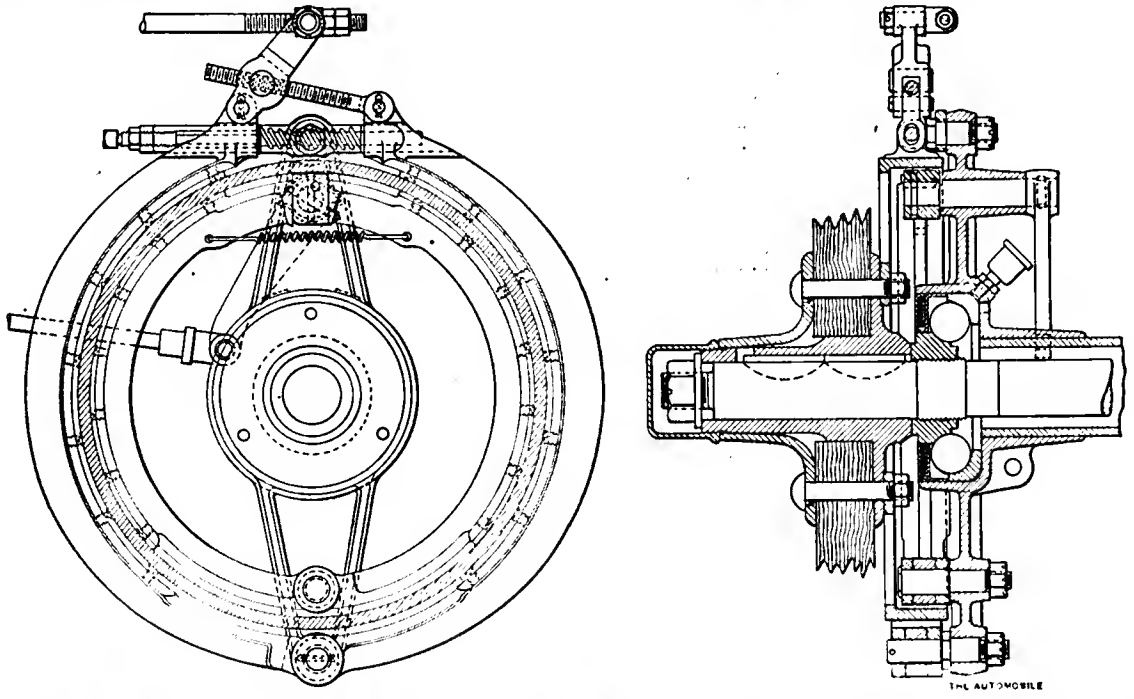
A novel feature of the ignition outfit is that, in addition to a coil for each cylinder, there is an extra coil which, in case of the breaking down of any of the regular coils, can be instantly placed in the circuit without stopping the engine. A six-volt storage battery is the regular source of current supply; ten dry cells are furnished for spares, and are connected up to give a seven-volt current.

Following the regular Pierce practice, the body is made of cast aluminum from the seat line upward; in the case of the larger car the outlines have been somewhat changed, especially in the rear, with a view to improving the appearance of the car. Three adults can readily be accommodated in the wide rear seat of either machine; the front seats are of the popular individual type. The dashboard is hollow and, like the upper part of the body, is of cast aluminum, with moldings of solid brass. Two mahogany cabinets are provided for carrying small tools.

Wheels are 36 inches in diameter, of wood, with 5-inch tires in the rear and 4 1-2-inch tires in front. Springs are all semi-elliptic and very long, those in front being 40 inches long and the rear ones 53 inches. The gasoline tank, under the front seats, holds twenty gallons, and has a pressure feed to the carbureter, the exhaust gases being used to furnish the pressure. Special provisions are made for the exclusion of dirt and to prevent too high a pressure in the tank. A sheet aluminum pan protects the under part of the motor and the transmission from the dust and mud of the road. Clutch and brake pedals are of the push type, these being more efficient than the press-down kind.



TRANSVERSE AND LONGITUDINAL SECTIONS OF ECCENTRIC ROTARY WATER PUMP.



SIDE VIEW AND VERTICAL CROSS SECTION OF DOUBLE-ACTING EXTERNAL AND INTERNAL HUB BRAKES.

The larger Pierce car, of 40-45 horsepower, is shown complete, with canopy top, in the accompanying halftone engraving. The aluminum body is curved at the rear; the body of the 28-32-horsepower car is of the straight-line type. The wide rear seat of the larger car affords plenty of room for three adult passengers, and there is sufficient space for even a tall man to be comfortable—a point of no small importance to the six-foot passenger, especially on a long run. Side doors are wide and easily entered. Lockers under both front and rear seats afford room for carrying the tools and supplies required when touring, and a rack at the rear provides a substantial support for a large hamper or trunk.

Model F Pope-Hartford.

The Pope-Hartford touring car for 1906, Model F, has a four-cylinder vertical motor of 20-25 horsepower, water cooled, driving the rear wheels by means of a cone clutch, three-speed sliding gear transmission, propeller shaft, bevel gears and live rear axle. The frame is of ash, flitched with steel plates, 1-16 of an inch thick, bolted on; cross members and the sub-frame on which the motor is carried are of channel steel. The body is of the regular touring type, having room for five passengers, and the rear of the tonneau has a special curve that is stated by the manufacturers to act as an efficient means of preventing the entrance of dust into the car, a current of air being deflected downward.

The motor has its cylinders cast in pairs with integral water jackets, heads and valve housings; the valves, located in the head, are all mechanically operated, and are all of the same size, being, in fact, interchangeable. Crankshaft is of nickel steel, with long bearings. Access to the cranks and connecting rods is obtained through two large hand holes located on the right hand side of the crank case; every bearing on the crankshaft is reached through these holes.

Lubrication of the engine bearings and the cylinders is by means of a force feed oiler driven by a belt from the camshaft, the oiler being placed on the dashboard. Ring oilers, with individual wells, are provided for the lubrication of the main shaft of transmission. The secondary shaft is so located that its bearings are immersed in the oil with which the gear case is partly filled, the oil keeping the gears thoroughly lubricated. All the bearings in the transmission gear are of phosphor bronze. Motion from the gear-changing lever is transmitted to the gears through a gear sector, pinions and a rack inside the gear case.

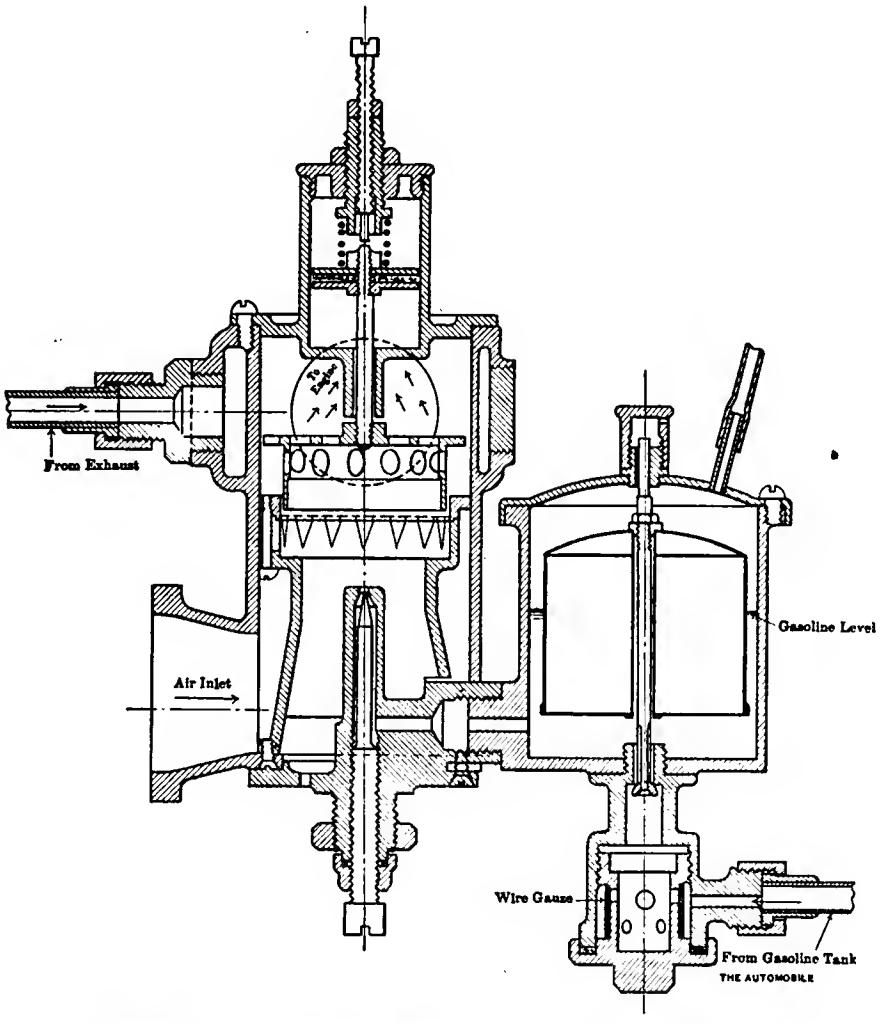
Ignition is by jump spark, a secondary distributor being placed between the second and third cylinders of the motor, driven from the camshaft by spiral gears; a single coil is used. The lever by which the time of ignition is controlled is mounted on top of the steering wheel column, above the wheel, and does not turn with the wheel. The throttle lever is also over the steering wheel, and stationary. The carbureter is said by the manufacturers to be entirely automatic at speeds of from 150 to 1,000 revolutions a minute.

Two universal joints are interposed between the transmission and the rear axle, one at either end of the propeller shaft, and provision is made for the ample lubrication of these joints. The pins are of hardened steel and work in removable phosphor bronze bushings.

The pinion driving the rear axle is made integral with its short shaft, which is mounted in two Timken roller bearings, while the large bevel gear is backed with ball bearings to take the thrust of the pinion. The live shafts are squared into the hubs of the large gears of the differential, the outer ends being keyed and locked to the hubs of the rear wheels. The front axle is a solid steel forging, with ends forked to take the steering pivots.

Two sets of brakes are provided, both being operated by foot levers or pedals. The regular service brake is a drum and band on the transmission shaft, directly in the rear of the gear case; while the emergency brakes are expanding rings fitted on the rear hubs, all the rings being faced with camel's hair belting. Either set of brakes can be made to lock the wheels of the car.

The engine hood opens from either side; guards are wide and flaring, giving ample protection from flying mud, and running boards extend from the front to the rear guards. The dashboard is of curved sheet steel with reinforcements of wood finished in natural colors. Wheelbase is 98 inches; tread, 56 inches; wheels, 32 inches, front and rear, with 4-inch tires; ball bearings on all road wheels. The gasoline tank holds 15 gallons, and the water system holds 5 gallons. Lamps, horn, tools and floor mats are supplied with each car.



VERTICAL SECTION OF PIERCE AUTOMATIC FLOAT FEED CARBURETER FOR 1906.

Shortly after dark Wednesday night a heavy report like that from a shotgun was heard at the rear of the courthouse on West Main Cross street. In less than a minute a large crowd had congregated, eager to learn the cause. As near as can be learned, a tire of an automobile that bursted caused the report, although the driver kept on going. Some assert that a gun was fired from the machine, but this is hardly possible.—Findlay (Ohio) *Republican.*

Reo Light Cars and 'Bus.

The Reo five-passenger touring car for 1906 is a light machine, weighing 1,600 pounds, and, with the detachable tonneau removed, but 1,515 pounds. A pressed steel frame is supported on full elliptic rear springs, and semi-elliptic front springs. Axles are tubular, the rear axle being of the live type and driven by heavy roller chain. The road wheels are of the wood artillery type, 30 inches in diameter. They run on roller bearings, and are shod with 3 1-2-inch tires; the wheelbase is 90 inches and the tread 55 inches.

A double opposed cylinder motor rated at 16 horsepower drives the car through a two-speed-and-reverse planetary transmission in which there are no internal gears. The motor has integral heads and water jackets and mechanically operated valves. A tubular radiator, tank, and a gear pump comprise the cooling system. Ignition is by jump spark, two sets of dry batteries furnishing the current. The gasoline tank has a capacity of 10 gallons, and the car will run from twelve to twenty miles on a gallon, according to the condition of the road and the skill of the driver. Steering is by wheel, the gearing being enclosed in a dust-proof casing. There is a double-acting band brake on the driving sprocket, and emergency brakes are fitted to the rear hubs.

The Reo four-passenger runabout, which was illustrated in THE AUTOMOBILE for October 12, has an 8-horsepower single cylinder motor placed under the body, driving through a two-speed-and-reverse planetary transmission gear, heavy roller chain and live rear axle. As in other Reo cars, the cylinder has its head, jacket and valve chambers cast in one piece, and the engine has mechanically operated valves, jump spark ignition, automatic carbureter, tubular radiator and gear pump.

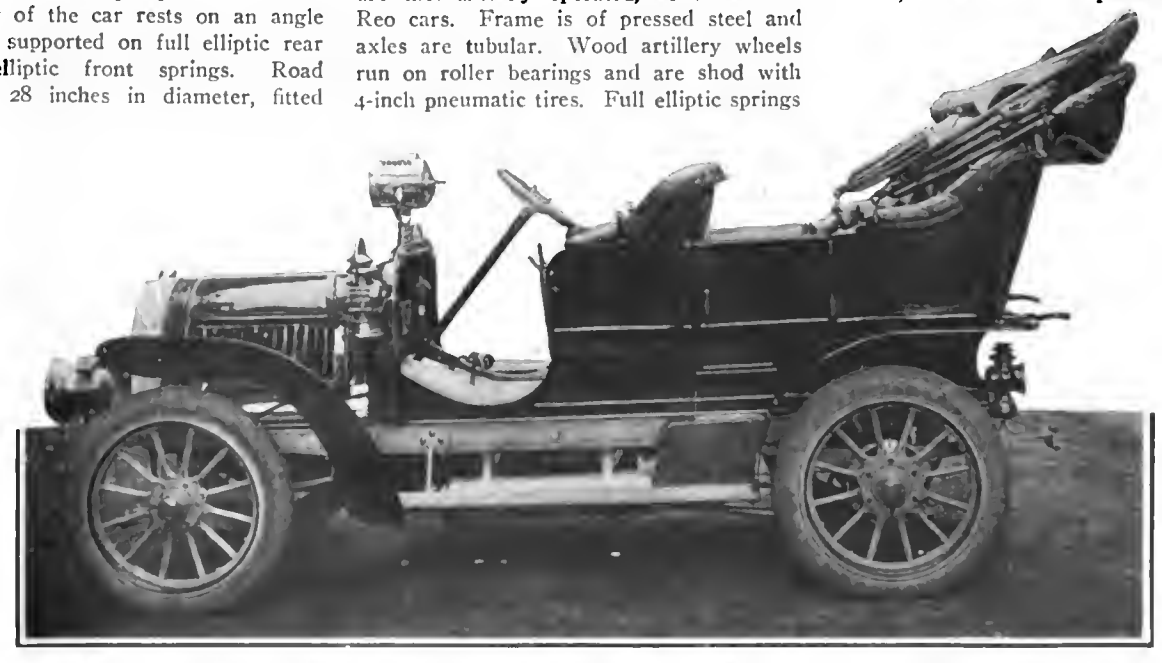
The body of the car rests on an angle steel frame supported on full elliptic rear and semi-elliptic front springs. Road wheels are 28 inches in diameter, fitted with 3-inch tires, and run on roller bearings. The car weighs 1,100 pounds, has a gasoline capacity of 6 gallons, wheelbase of 78 inches, and tread of 55 inches. A folding rear seat is a convenient feature; folding down out of the way when the car is to be used as a two-passenger machine, so that it does not detract in any way from the appearance of the machine. When it is desired to carry extra passengers, the seat can be raised easily and quickly.

REO 16-HORSEPOWER LIGHT FIVE-PASSENGER TOURING CAR FOR 1906.

The Reo ten-passenger gasoline 'bus, illustrated on page 470, is propelled by a 16-horsepower motor, having double opposed cylinders of 4 3-4 inches bore and 5 inches stroke, driving the live rear axle through a planetary transmission and a single chain. The transmission, like that of the touring car, has no internal gears, and revolves as one piece when the high speed is engaged. The engine is water cooled, the radiator being of the tubular type, and the water circulated by a gear pump. Valves are mechanically operated, as in all the Reo cars. Frame is of pressed steel and axles are tubular. Wood artillery wheels run on roller bearings and are shod with 4-inch pneumatic tires. Full elliptic springs support the rear of the body, while in the front semi-elliptics are fitted. Wheelbase, 90 inches; tread, 55 inches; wheel steering; gasoline capacity, 13 gallons; speed, eighteen to twenty miles an hour. There is a double acting brake on the driving sprocket, and also band brakes on the hubs. The 'bus weighs complete, 1,700 pounds.

COLUMBIA MODELS FOR 1906.

Among the machines brought out for the season of 1906 by the Electric Vehicle Co., of Hartford, Conn., will be a new model 20-horsepower four-cylinder Columbia touring car. The two-cylinder car and the big 40-horsepower touring car will be improved in a number of details, the main features remaining unchanged. Nickel steel will be used freely in the construction of all three models. Among the electric vehicles manufactured by this concern will be light weight broughams, landaulets, hansoms and victorias, all mounted on the same type of running gear. The lighter electric machines, runabouts and phætons, will be



POPE-HARTFORD MODEL F FOUR-CYLINDER 20-25 HORSEPOWER CAR, WITH DUST DEFLECTING CURVE AT REAR.

practically the same as in the 1905 models. Electric trucks and delivery wagons ranging from the huge 10,000 pound beer truck to the light 1,000-pound delivery wagon, will be manufactured as heretofore. The company states that many orders for commercial vehicles of various types are already booked for 1906 delivery.

Maxwell 3,000-Pound Truck.

The wide field that is opening up to the commercial automobile has brought the Maxwell-Briscoe Motor Co., of Tarrytown, N. Y., into the market with an 18-horsepower gasoline truck on which the company's engineer and designers have been working for the past year. The main features of the new truck are similar to those of the Maxwell touring car, although such parts as have to bear extra strains are made heavier and stronger than in the pleasure car. The motor, like that of the touring car, has double opposed cylinders of 5-inch bore and 5-inch stroke, and the aluminum crankcase of the engine is prolonged toward the rear to form the casing for the multiple disc clutch and the three-speed sliding gear transmission. The same peculiar construction of the engine, with valve operating mechanism removable in a separate casing, and the ready accessibility and adjustability of the main and connecting rod bearings that characterize the Maxwell pleasure cars are retained. Babbitt lined bronze shells take the wear in the main engine bearings.

Framing, axles, knuckles, wheels, springs and other parts on which the weight of the load imposes extra stresses are made heavy. The rear axle, of the live type with propeller shaft and bevel gear drive, runs on roller bearings; a roller of the same size and bevel as the driving pinion is placed back of the large bevel gear, opposite the pinion, to take the thrust.

MAXWELL 3,000-POUND TRUCK, DRIVEN BY 18-H.P. OPPOSED CYLINDER MOTOR IN FRONT.

The platform body has a loading space 10 1-2 feet long and 6 feet wide; the normal load of the truck is 1 1-2 tons, but a maximum load of 4,000 pounds can be carried. With all tanks full, the vehicle weighs 2,600 pounds. Its maximum speed is eighteen miles an hour. The wood wheels are 32 inches in diameter, shod with Firestone solid rubber tires 4 inches in diameter on the rear wheels and 3 1-2 inches in diameter on the front wheels.

The Maxwell truck was seen in public for the first time on the occasion of the Vanderbilt cup race, when a score of employees of the company were conveyed to the course in one of the new machines.

REO TEN-PASSENGER 16-H.P. OMNIBUS DRIVEN BY DOUBLE-OPPOSED ENGINE.

Details of Premier Racer.

The engine of the Premier racing car, built primarily for the Vanderbilt cup race, but debarred from the elimination trials because it could not be gotten down to weight in time, is illustrated herewith, and we are now able to give details that were not available when the picture of the car in an incomplete state was published on September 14. The builders state that the weight is now within the limit.

Briefly, the engine has four vertical cylinders with integral heads and valve chambers; cooling fins, of the familiar type, are cast on the cylinder barrels, the heads and the valve chambers. There are twelve fins on each cylinder; those on the cylinder heads and valve chambers run fore and aft, so that the air currents have a free passage between them. The bell cranks through which the valves are operated, are mounted on A-frames on the tops of the cylinders, as the illustrations clearly show. The camshaft is driven by bevel gears, power being communicated through a vertical shaft from the crankshaft. Valves are of large size, particularly the exhaust valves, which are 3 1-2 inches in diameter, the inlet valves being an inch smaller.

The cylinders are of 7 inches bore by 5 1-2 inches stroke, and are not bolted down in the usual way, but are suspended above the open aluminum crankcase by brackets cast on the cylinders and bolted to short columns rising from the arms of the crankcase. This feature also shows plainly in the engraving. Although originally rated at 80 horsepower, the builders, the Premier Motor Mfg. Co., of Indianapolis, now credit the motor with 100 horsepower.

The carbureter is an enlargement of the carbureter that will be used on the 1906 Premier touring cars. It has no springs and but one moving part in addition to the float. The proportions of air and gasoline are automatically controlled.

The clutch consists of a series of discs made from saw steel, half the discs being hardened and the alternate plates left soft. The soft discs are attached to the flywheel by steel studs, while the hardened plates have lugs which enter a keyway in the clutch shaft. There are twenty-one discs in all, each 9 inches in diameter.

A sliding gear transmission of the selective type gives three forward speeds and a reverse, a single side lever being used for effecting engagement. Drive is by propeller shaft having a universal joint just behind the transmission gear case.

A force-feed lubricator is driven from the crankshaft by a pig-skin belt running on flanged pulleys. Ignition is by jump spark, there being four vibrator coils on the dashboard. The distributor has wire gauze brushes held by springs in contact with a revolving copper cylinder, one segment of which is in electrical contact with the distributor shaft; mica is used for insulation.

Special shock absorbers are fitted to the frame of the car and consist of drums 5 inches in diameter with 2 1-2-inch face, bolted to the side frames and encircled by leather-lined steel bands, connected to arms bolted to the axles. Screws are provided for adjusting the tension of the bands.

No cooling fan is employed, but the hood, which is not shown, has wind-catching wings that cause strong currents of air to play on the engine when the car is in rapid motion.

This car was entered for the race meet held in Indianapolis on October 25.

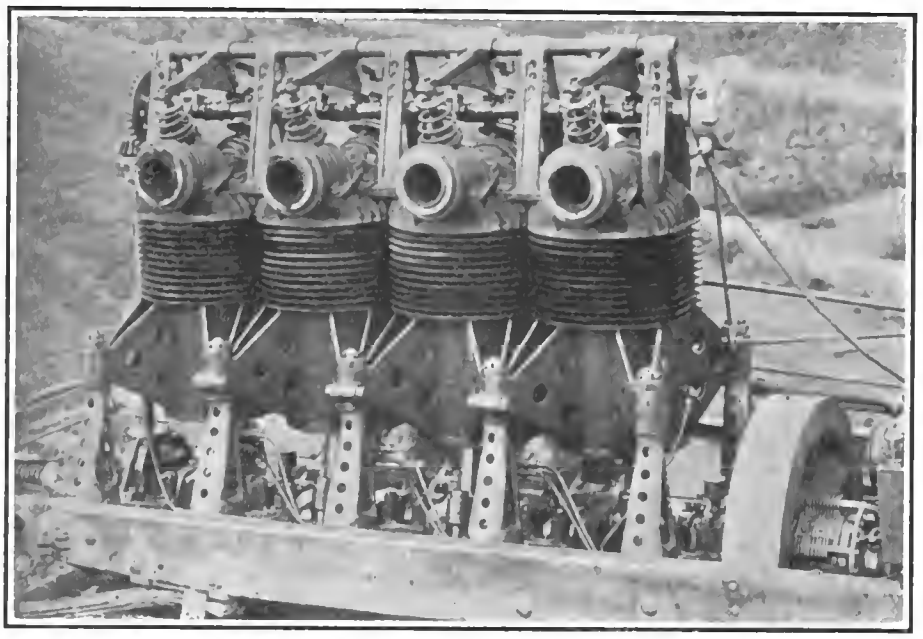
Testing Plant at Purdue.

Special Correspondence.

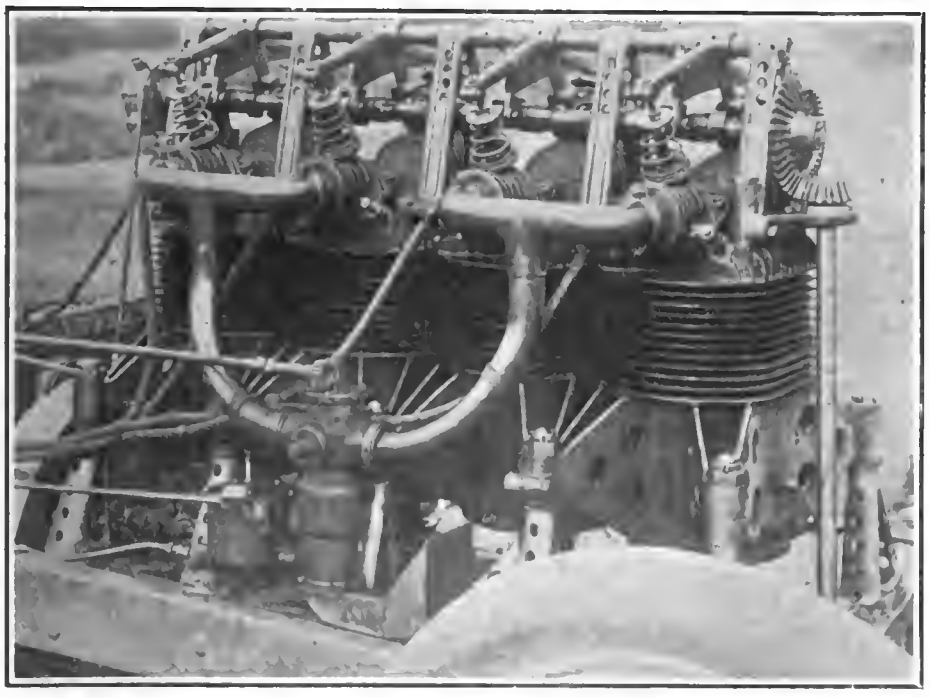
SOUTH BEND, IND., Oct. 23.—The new automobile testing plant in the mechanical department of Purdue University, at Lafayette, Ind., is now nearing completion, and experiments will soon begin. The object of the new department is to test the consumption of fuel, horsepower delivered at the wheels and general efficiency of machines under examination. The automobiles which will be delivered at the university, in running order, will be mounted on a stationary platform with the rear driving wheels resting on rollers that will revolve under the wheels of the car. A dynamometer will measure the power developed by the engine and a brake horsepower device will measure the net power output or power delivered at the wheels. This, with the amount of fuel consumed for a given time, will give the general efficiency of the machine.

The plant is complete in every detail, a heavy steel structure serving for a platform upon which the automobile is to rest while the test is being made and machinery of the very latest design being used for thoroughly testing the motors. The work of erecting and equipping the department is under the supervision of O. C. Klipsch, a new man at Purdue, who was formerly with the General Electric Company.

The automobile testing plant will eventually be turned over to the members of the senior class in the school of mechanical engineering, who will conduct tests for their thesis work. They will test the various makes of cars and will have the co-operation of the engineering department.



EXHAUST SIDE OF ENGINE OF PREMIER RACER BUILT FOR VANDERBILT RACE.



INLET SIDE OF ENGINE, SHOWING CYLINDER SUSPENSION AND CAM SHAFT ARRANGEMENT.

NEW PUBLICATIONS.

Annuario del l'Automobilismo (Annual of Automobiling), 1905-1906; Italian Touring Club, Milan, Italy. Price, 2 1-2 francs (50 cents) for members; 5 francs ($1) for non-members. This volume, in the Italian language, should prove of great value to automobilists touring in Italy. It contains the text of the laws and regulations for the circulation of automobiles in that country; all the custom house provisions in force in the principal countries of the world, for the temporary or permanent importation of motor vehicles, detached pieces and accessories; the provisions governing the transport of such vehicles on the Italian railroads, tramways and lines of navigation, and other information of the greatest value to the tourist. Much other data of interest is contained in the book, such as a complete list of owners of autos and motor-

cycles in Italy, with addresses; a list of Italian manufacturers and constructors of automobiles, motors for autos and boats, motorcycles, tires and accessories. A directory of dealers and agents of Italian and foreign manufacturers, and of garages and repair shops in the various cities is also given. These lists may prove of use to American exporters. In the second part of the volume the information is divided by countries, under the following heads for each country: (a) Legislation, circulation, custom house provisions, transportation. (b) Italian diplomatic and consular corps with each government. (c) Consular corps of the Italian Touring Club. (d) Automobile and touring clubs. (e) Publications of interest to the tourist. The present annual is much larger (732 pages) and more complete than its predecessors. The little volume measures 6 by 4 by 1 inch, and is of very convenient size for the pocket.

Manuale del l'Automobilista (The Automobilists' Manual), by G. Pedretti, second edition, 746 pages, 837 illustrations, published by Ubrico Hoepli, Milan, Italy, 1905; price, 8 1-2 lire ($1.64). This Italian manual contains a fund of practical information for the practical automobilist, chauffeur or mechanician. It is written by an instructor on automobiles and motors—Engineer Pedretti—and is very thorough, covering every branch of the industry. It is copiously illustrated with line and halftone engravings. The first part of the volume is devoted to a history of the automobile, and the author then goes thoroughly into a description of the component parts. In subsequent chapters all the different types of automobiles are exhaustively described and illustrated. A clear and full course of instruction for the chauffeur and mechanician is also given, no pains having been spared by the author or the publisher to make the volume a complete *vade mecum* for the beginner as well as the experienced automobilist, inventor and constructor. The volume is up to date, and embraces the whole field, not excepting auto boats and motorcycles. This book should meet with a well-deserved success in Italy, or wherever the Italian language is understood.

Plain Gas Engine Sense is the title of a little book intended for practical men whose business or pleasure brings them in contact with gas engines, which has been published by *Gas Power*, of St. Joseph, Mich. The volume, which is only 3 3-4 inches wide and 5 1-4 inches long, is devoted to practical matters, to the exclusion of ancient history, abstruse mathematics and uninteresting theories. Instructions are given for caring for and adjusting the various parts of gas engines, for making small repairs, finding causes of trouble, and so on, and the book is written in plain, easily understood language throughout. The author, E. L. Osborne, believes that the gas engine is the motor of the future, and expresses his opinions forcibly. The book contains 124 pages and a number of halftone and line engravings.

ONE SHIPMENT OF GASOLINE TRUCKS.

Every year sees a new and larger output of better and more serviceable commercial motor vehicles than the year before. Business men are becoming more familiar with their advantages and convinced of their economy, and manufacturers who are building good machines are gradually establishing a trade in a field that offers enormous possibilities for the future. Big concerns now order motor trucks a number at a time, instead of singly, as at first. The accompanying illustration shows five 3,-000 pound trucks built by the Packard Motor Car Co., of Detroit, ready for shipment from the Packard factory to the Adams Express Co., in New York City. The Packard company states that difficulty is experienced in keeping abreast of the demand for commercial machines. Among recent shipments were three trucks sent to Central America, to be used on routes between the mines and the coast.

An international exposition will be held in Milan, Italy, from May to November, 1906, to celebrate the opening of the Simplon tunnel. A pavilion will be set apart for exhibits of automobiles. Information regarding the exhibition may be obtained from J. H. Gore, George Washington University, Washington, D. C., or from L. S. Ware, 54 Rue de la Bienfaisance, Paris, France.

Government aid to highway improvement had its origin under Thomas Jefferson. President Madison endorsed it in one of his later messages to Congress. Henry Clay contended for it in a speech in Congress in 1818. John C. Calhoun, while Secretary of War, in 1819, strongly endorsed it in a report to Congress on roads and canals. The great Webster declaimed for it in a speech in the United States Senate in 1830. At St. Louis in 1903 President Roosevelt declared that the people had a right to demand this help from the general government, and on the same occasion, from the same platform, William Jennings Bryan declared that it was justifiable on a half dozen or more safe grounds, which he stated. In January last the Senate committee made a favorable report on the measure, and it would have passed but for want of time.

No man who has not visited Texas in recent months can even surmise the great change worked by the automobile. Why, the latter has now brought points more than a hundred miles distant from the railways into the closest touch with civilization. What used to be days of travel between distant ranches and railway stations is now merely a matter of a very few hours. Nearly all the ranchmen own their automobiles, and you can see them skimming the broad prairie in every direction, at times frightening the jackrabbits and the coyotes and striking consternation to the hearts of hoot-owls and rattlesnakes.—Dallas (Tex.) *News*.

The commercial clubs of Omaha, Neb., and Council Bluffs, Iowa, have decided to establish an automobile line between their respective cities with an advertising venture in view. The merchants will give coupons to customers, which will entitle the holders to free rides on the motor cars.—Chicago *Inter-Ocean*.

FIVE PACKARD GASOLINE TRUCKS READY FOR SHIPMENT AS ONE ORDER TO ADAMS EXPRESS COMPANY IN NEW YORK.

Letter Box

Autos Used by Department of Public Works on Staten Island.

Editor THE AUTOMOBILE:

[279.]—With reference to your communication, I am in receipt of a report made to me by William R. Hillyer, Assistant Commissioner of Public Works, in the Borough of Richmond, of the City of New York, to whom your letter was referred. Enclosed you will find a copy of Mr. Hillyer's report to me.

GEORGE CROMWELL,
President of the Borough of Richmond,
New Brighton, N. Y.

HON. GEORGE CROMWELL, President of the Borough:

Four automobiles are now in use by the city officials in your department. As THE AUTOMOBILE asks about machines used by city officials in our borough, I would state that there are several others in other departments (than the Deuartment of Public Works), as to the behavior of which I am not sufficiently informed to make a statement; but of the four in use in your department, I would state that they are:

(1) One Oldsmobile runabout, of 4 1-2 horsepower, purchased about March, 1903. This, in spite of abuse through being handled by green men, has done as good service as can be expected of such a light power car. For purposes where a light runabout, corresponding to a horse and buggy, is required, the Oldsmobile, even with as light power as the old one which we now have, is undoubtedly a very handy and useful piece of equipment. This machine to date has covered about 10,000 miles.

(2) One 16-horsepower, double-cylinder, air-cooled Knox touring car, of the model of 1904, which went into commission about June 1 of last year. Up to the present time the machine has run somewhere between 10,000 and 11,000 miles. It gets hard service, and has proven generally satisfactory. Considerable difficulty was experienced in the matter of rapid wear of the pneumatic tires on the rear or driving wheels, but during the early part of this summer we abandoned the use of four-inch tires and had larger rims put on the driving wheels and fitted with five-inch Michelin flat-tread racing tires. This seems to have about put an end to the tire trouble. The air-cooling feature of the Knox car is a good one, doing away with the danger of freezing, and by reason of this we were enabled to use the car as usual during a large part of last winter.

(3) In the latter part of 1904 a two-cylinder Queen 10-horsepower was purchased. The Queen is a good, substantial machine, very simple in construction, well designed, and, with proper handling, a good working vehicle.

(4) Our fourth machine is an Orient buckboard, of about 4 horsepower. It has been in use for only about two months. It is used by our engineer in visiting contract work, and although for its power probably does as much as could be expected, yet it is not a machine for the constant work and the heavy grades of our Staten Island roads.

The purposes of our machines are in general the supervision and inspection of outside work. The Oldsmobile was for its first year used by the Superintendent of Street Cleaning almost exclusively and for the most part constantly. During the remainder of the time its service has not been so constant, and yet there have been very few days when it was not in use for probably half the time for general inspection and supervision purposes.

The Knox car has as its most fixed use the transportation of the city paymaster, who one day each week covers a run of about fifty miles, in which he pays city employees at from a dozen to fifteen points. A great saving of money has resulted to

Along the Bank of the Pretty Pequest River at One of the Quiet Pools.

the city from its use, for the old custom, when the paymaster was dependent upon public means of transportation by the cars and trains, was to pay at but three or four points in the borough, in which case the men had to leave their work on pay day and go considerable distances to these points, whereas now, by the use of the touring car, the number of paying points has been largely increased, and the time lost by the men in meeting the paymaster has been reduced to such an extent that a saving in time estimated at about $50 a week has been effected. During the remainder of the week the car is used for general purposes of inspection and supervision by the Borough President himself, the Commissioner of Public Works, and the various superintendents of bureaus.

In general, our opinion is that the use of the automobiles is far superior to that of horses for supervising officials, whose time mus tbe divided between office duties and outside work, for although the saving per mile of the automobile over horse and buggy is not material when repairs are taken into account, still the increased amount of ground covered during a limited number of hours a day and the increased number of points which may be visited by the supervising officer, makes the automobile method decidedly superior as to measure of increased efficiency.

With trained men to operate the machines so that they are not injured early in their existence by reason of green hands learning to operate them (which is often the cause of serious damage to the machine, from which it never entirely recovers), there is no question that automobile runabouts are an immense help in the economical and efficient carrying on of the inspecting and supervisory branches of public work.

As to additional machines in our department, none are definitely contemplated at present; but, in my opinion, it may become a matter of good judgment to equip all our inspectors of maintenance with runabouts instead of, as at present, either furnishing them with horses and buggies or paying them, as we do, an allowance each month for the use of horses and buggies.

WILLIAM H. HILLYER,
Assistant Commissioner of Pubilc Works.
New Brighton, N. Y.

Through Delaware Water Gap.

Editor THE AUTOMOBILE:

[280.]—The photographs herewith were taken on a recent trip through the Water Gap and up into the valley of the Delaware, and the places will, no doubt, be recognized by many who have been over the same route.

The Delaware river is crossed at many places between Port Jervis and Easton by the type of ferry shown. It is simply a large raft with low sides. Running from a windlass at each end is a rope which terminates on an iron ring that slides on an overhead cable, stretched from shore to shore about twenty feet above the water. When the river is high and the current swift, the "bow" end of the ferry boat is drawn up stream by its windlass, thus placing the raft obliquely across the current, and the effect is to drive it rapidly across with no other aid. When the river is low,

Myers Ferry Across Delaware River at Delaware, Nine Miles Below the Water Gap.

the ferry is poled across in the ordinary way. The photo shows Myers Ferry at Delaware, about nine miles below the Water Gap. The banks on each side are steep and call for most careful driving to get aboard without accident. This is particularly true on the Pennsylvania side (shown in the photo) because of a very sharp turn just at the foot of the road.

One of the most beautiful features of this route is the Pequest River, which is followed closely for about nine miles. This stream presents quiet nooks and pools varied with rapids, and steep banks alternating with sloping, grassy shores.

Anyone who has once taken the trip will certainly anticipate its repetition with much pleasure. E. H. B.

Newark, N. J.

A Case of Jersey Injustice.

Editor THE AUTOMOBILE:

[281.]—A week or so ago a great deal of comment was created in the press by some extraordinary remarks made by Justice John Franklin Fort, of the New Jersey Supreme Court, in charging the grand jury at New Brunswick, in which he stated that he doubted that automobiles had any right whatever on the highway. This same justice capped the climax for motorphobia on the bench in charging a jury yesterday in a damage suit brought against me by William Addis.

The whole case is so unusual that I will give it here as briefly as possible:

On May 28 I was driving a 12-horsepower Packard car along Richmond street in Plainfield. The street was obstructed on the right side and a large, slowly-moving truck on the car tracks in the center made it necessary for me to pass to the left. As I was turning to the right side again I saw two bicycles coming toward me, and I signaled with my horn. Both riders lookcd up, and the first rider, becoming confused, turned to his left. I quickly turned to the left again, and safely passed the first rider. The second rider, apparently thinking I had continued passing over to the right, kept on at top speed. He had his head down and was looking backward at a lot of men who had just been paid off at the Scott Press Works and were calling to him. I signaled again, and, noting that a collision was inevitable, jammed on the brakes and threw car to right, stopping it in its own length and directly at right angles to the street. After the car came to a full stop the wheelman ran head on into the side of the rear wheel. He was thrown off and his wheel smashed. He got into the car with me, and I took him to the doctor's office. His finger was cut on the steel fender, and I tied this up with my handkerchief. After leaving him at the doctor's I went to the man's house and explained the accident to his wife. I did not admit any responsibility, but, recognizing the man as one who had worked at my shop, I offered to repair his wheel and pay his wages while his hand was disabled.

The man was back at work in a few days, and brought suit for $1,000. His lawyer bungled several times in drawing his papers, and the case came to trial only yesterday, sixteen months after the accident.

The plaintiff on the stand contradicted himself on nearly every point. His witnesses either admitted that they did not see the collision or admitted that the car came to a stop before the bicycle ran into it. Plaintiff's doctor testified that the man was but slightly hurt, and a week or two after the accident had entirely recovered. One of the leading physicians of Elizabeth, Dr. Green, testified that the man was in perfect health, and showed no effects of the accident. Dr. Wilson, a noted eye specialist, as had Dr. Green, examined the man during the trial, in the presence of both counsel, and declared that the man's eyesight was unimpaired. No medical experts were called by the plaintiff.

I produced five witnesses who testified that the man was looking back and that the car had stopped, also two witnesses who testified that the man had told them immediately after the accident that he had never seen the car at all. None of these witnesses was contradicted except by the two witnesses whose testimony would, according to law, be thrown out.

The plaintiff's lawyer, W. A. Coddington (himself an automobilist who has lately figured in several bad smash-ups), made a most rabid speech against all automobiles, and went so far in his violation of common decency that three times the judge was obliged to stop him and rule that his remarks were highly improper.

Notwithstanding it was clearly shown that I was in no way to blame, the justice, in charging the jury, stated that while the law clearly provided that "at times the rider of a bicycle or horse-drawn vehicle must cross to the left side to avoid accident, or to pass a slower or stationary vehicle going in the same direction, there was no such law permitting an *automobile* to so pass to the left"; adding also: "If you find that the plaintiff was, *as he had a perfect legal right to be,* on the right side, then you must find for the plaintiff," thus clearly insinuating to the jury that it made no difference whatever that the injured man was grossly negligent himself.

Through a defect in the papers the judge was obliged to charge that the plaintiff could not recover for any permanent injuries, but only for loss of his bicycle and suffering up to the time of the filing of the suit. The jury brought in a verdict for $500 for the loss of bicycle, a slightly cut finger and a week's wages.

This verdict is so grossly unjust and against the weight of the evidence, and the remarks of the judge were so entirely improper, that an appeal will be taken at once.

When we see our "courts of justice" in this manner turned into agencies for the collection of blackmail, and when our supreme court judges indulge in such unreasonable talk to juries, how can anyone have respect for the law?

In this case the whole argument against me was that I had acknowledged the liability by offering to help the injured man in his trouble by repairing his wheel, by tying his hand with my handkerchief, and by taking him to the doctor. How, in view of such a miscarriage of justice, can a motorist be blamed for going on his way and not stopping to help some careless fool who may negligently put himself in the way of a moving car?

I think that the plaintiff's lawyer in this case, a motorist, after becoming fully aware of the facts, is guilty of conduct such that every motorist should hold him forever in contempt.

S. W. RUSHMORE.

Plainfield, N. J., October 12.

Shaft Drive in Cup Race.

Editor THE AUTOMOBILE:

[282.]—Although the different machines which participated in the Vanderbilt cup race have been pictured and described in all trade papers, magazines and dailies throughout the country, and the main features of the various types of car referred to, there is one feature, and an important one we think, which has been passed over entirely or given but slight mention. We refer to the transmission and drive.

In racing cars and high-powered cars the preponderance of construction has been on the side of chain and sprocket drive. The Packard company for some years has made a special point of its transmission and drive, and we think you will allow us the assertion that we stick at nothing and to nothing that we think would not be for the most perfect construction in a motor car. Early in the racing game we built the *Grey Wolf*, using shaft drive and bevel gears, and it made and held a number of records. Both the Darracq and the Panhard, which came in first and second in the race last Saturday, have shaft drive through bevel gears, the Darracq identically the same as the Packard, the transmission and bevel gears forming a single unit at the rear axle.

The fact that a light-weight, medium-powered car and also a high-powered car should show up so well under such terrific speed and strain only demonstrates the fact that there has yet to be devised a superior construction to the shaft and bevel gear drive, such as the Packard company is using and makes a special feature in its touring cars.

It is only natural that a builder likes to have his ideas proven correct by such test as was given the cars in the Vanderbilt cup race.

PACKARD MOTOR CAR COMPANY,
W. H. WORKMAN,
Advertising Department.

Detroit, Mich.

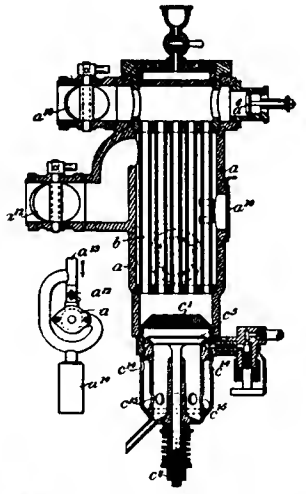
Rats have been known to develop a taste for tires, and have caused many mysterious deflations.

Patents

Kerosene Carbureter.

No. 800,777.—A. Westmacott, of St. Helens, Isle of Wight, Eng.

The air enters by the openings c^{14}, c^{15}, and, passing upward, lifts the valve c^5 and draws kerosene spray from the openings in the valve seat. This spray is broken up on the rough inner surface of cone c^1, and is evaporated by passing through the tubes *b*, which are surrounded by hot exhaust gases. The mixture passes out through the throttle valve a^{16}. The small valve a^9 opens automatically when the speed of the engine becomes excessive, thus acting as a sort of governor by diluting the mixture and causing the engine to slow down. The exhaust gases enter by the regulating valve a^{12} and



WESTMACOTT KEROSENE CARBURETER.

pass to the muffler by the dotted outlet a^{19}. Shutter a^{18} may be opened to heat the tubes with a torch for starting. The small view at the side shows the piping arrangement. The gases enter at a^{13}; *a* is the carbureter and a^{14} the muffler.

Flywheel Clutch.

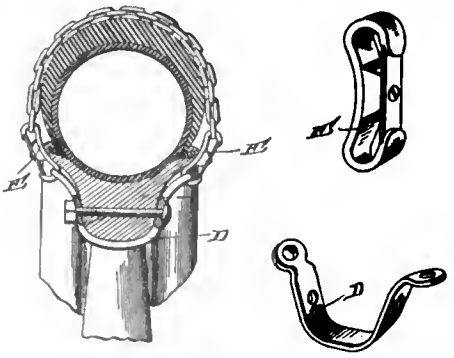
No. 800,564.—L. E. Gibson, of Kokomo, Ind.

A cone clutch engaged by the thrust of a set of toggles acting between the male member and the shaft, which is extended through the flywheel. The toggles are straightened by forcing a ring or sleeve over them, thus engaging the clutch.

Ignition Timer.

No. 800,418.—R. Varley, of Englewood, N. J.

An improvement on another device of the same inventor, consisting of a timer having separate cams for contact making and breaking. The two cams are advanced differentially, the breaking cam more slowly, so as to increase the arc of contact for high speeds. The improvement is based on the theory that an early spark is sometimes preferred with slow speed, when the latter is the result of throttling or of a heavy load. To accomplish this result the breaking cam is arranged to be operated in connection



SMITH TIRE CHAIN FASTENER.

with the throttle when desired, to give a short arc of contact under such conditions with the spark fully advanced.

Tire Chain Device.

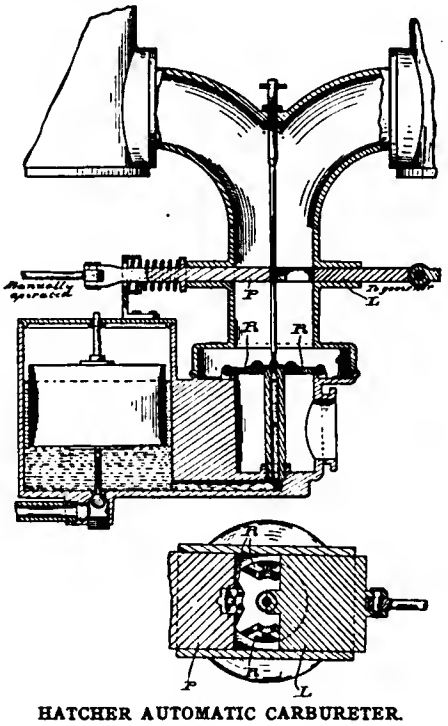
No. 801,115.—W. J. Smith, of Canastota, N. Y.

The yokes *D* are bolted to the felloe at intervals, and the snaps *E* hold the chain to the yokes. The chain is passed zig-zag across the tire from one yoke to the next, and may be removed when not wanted.

Carbureter.

No. 800,647.—W. A. Hatcher, of Cleveland, O.

An automatic carbureter having special means for varying the area of the air passage around the spray nozzle, according to the velocity of the air stream. The means consists in a "flap valve" *R*, divided radially into four separately-hinged parts, as shown in the plan section. These are



HATCHER AUTOMATIC CARBURETER.

lifted to a greater or less extent by the air current, giving a wide opening at high speeds and *vice versa*. The plan section is taken through the throttle valve, which is in two parts—one, *P*, operated by hand, and the other, *L*, by the governor. The throttle can, if desired, be entirely closed, and the hand portion can be operated to give—as shown—more than a semicircle of opening independently of the governor.

Muffler.

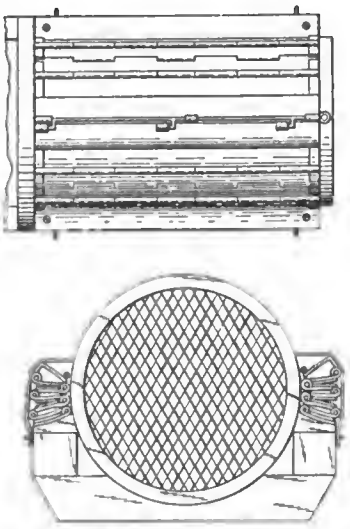
No. 797,681.—E. P. Gray, of Cincinnati, Ohio.

A muffler with cut-out, automatic relief, and whistle attachment for road signals.

Folding Motor Hood.

No. 801,155.—H. Raphael and E. D. Toops, of Indianapolis, Ind.

A hood made to open at the middle of



RAPHAEL AND TOOPS FOLDING HOOD.

the top, and having the two halves jointed or hinged at short intervals, so that they may be folded as shown in the lower view. The fastener for joining the two halves is shown in the plan view. The hood, as shown, is adapted especially for application to the National cars, built in Indianapolis.

Motor Truck.

No. 798,926.—C. Schmidt, of San Francisco, Cal.

A truck having the platform hung very low, the axles being dropped for the purpose. The four-cylinder motor is placed fore and aft, and through a propeller shaft drives a cross countershaft under the platform just forward of the rear axle. Sprocket chains running up to the rear wheels complete the drive. To permit the platform to be spring-supported, the countershaft is carried in a frame attached to the axle instead of to the platform. A system of spiral and bevel gears transmits power also to the front wheels from the front end of the motor shaft, and steering is by a fifth wheel or turntable. No speed-changing gear is shown, as the invention is not limited to gasoline motors.

THE AUTOMOBILE

VOL. XIII. No. 17

Published every Thursday by
THE CLASS JOURNAL CO.,
Flatiron Building, Madison Square,
NEW YORK CITY.

Cable Address - - - - Autoland, New York
Long Distance Telephone - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2.00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 5 o'clock p. m. Monday for the issue of Thursday following.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies Printed in 1904,	**639,200**
" " **This Issue,**	**14,000**
" " **Since Jan. 1,**	**603,500**

Road Race or Touring Competition?

Coming at a time when the question of the absolute abandonment of road racing in favor of touring competitions is under discussion abroad, the present situation in this country presents some serious problems. The overshadowing prominence of France in automobile racing, and the fact that American racing thus far has been modeled upon French lines, have led many to the conclusion that road racing has had its day here as well as abroad, and that the time has come when it should finally be abandoned in favor of other forms of competition. That such races as those for the Vanderbilt cup in 1904, and again this year, are of no real benefit to either the general or the trade interests of the automobile, is now as plainly evident as are the beneficial effects of touring competitions when well managed; but it does not follow from either proposition that no good whatever may be derived from road racing.

If it were a question of absolute choice between touring on the one hand and racing on the other, the decision would be an easy one; but no such issue exists. Automobile touring in all its forms has attained to a popularity that assures its permanence, and the particular form under discussion—of a long tour with a system of point scoring—promises to become more popular each year, as cars of moderate price are perfected to a degree which makes them suitable for this work. There need be no fear that a continuance of road racing will interfere with the touring contests, as the two appeal to entirely different classes so far as principles are concerned.

With or without racing, touring is certain to continue, bringing good results of its own; but at its best it falls short of racing in certain respects.

However interesting the competition may be to the participants, and however fruitful in results in the form of reliable data on fuel, tires, etc., touring can never appeal to the public in the way that a great race does, and it can never serve as a great awakener and advertiser of the automobile. It may be claimed that much of the interest in a road race is fictitious, sensational and incidental, but at the same time experience has proved that public contests of this kind serve a good purpose in the way of awakening outside interest as well as in stimulating the ardor of competition among those directly concerned.

It is a waste of time now to argue whether or not racing should be abandoned, when the real question is, "How can the greatest possible good be derived from racing?" This latter question involves many points; the general management, the specific conditions, whether the contests shall be national or international, and others of minor importance.

It goes without saying that the management of racing should be in the hands of some one national body, as local bodies are unable to deal properly with national or international interests. The present situation is that the national body, the American Automobile Association, has in the conduct of the last race so impaired its prestige that it no longer retains the respect of possible competitors. It may be that a radical reorganization, placing the control of racing in a small committee of picked men in place of the present large and unwieldy one, will effect the necessary reform. At the present time, others stand ready to assume the control of racing, and it is evident that some prompt and radical action is necessary.

So long as the highest speed obtainable in a road race was no greater than that permitted by law, there was no need of any restrictions on the car; but while the racing speed has risen to fifty, sixty, and even ninety miles per hour, the only limit imposed has been a total weight of 1,000 kilograms. Even the nominal relation between the racing machine and the fastest of touring cars has disappeared, and until this relation is restored, no further good can be derived from racing.

There can be no doubt that a road race will be held near New York next fall, and this brings up the important question as to whether for the present and for some time to come such races should be national or international. It is plain that at the present time America has no chance of success against the best cars and drivers of France, Germany and Italy. It is urged on the one hand that our progress will be more rapid, and the immediate results, at least more gratifying to national pride, if all foreign competitors be barred. On the other hand, there are those who contend that the only way to that world-wide success which alone can be thoroughly satisfactory to Americans is through continued competition with all rivals, even though the present rather mortifying results should continue for several years more.

✷

Racing Under Technical Limitations.

That road racing as now carried on in this country has been very generally condemned is in no way extraordinary when the rules are considered. These are essentially of French origin, and consequently are based upon certain conditions attendant upon the development of the automobile in France. Most important of these is the excellent character of the Continental roads, permitting a high average speed in ordinary touring and inviting the development of extreme speeds in racing. Even the most powerful of the new cars can be run continuously at something near their limit on the average road.

Another thing that has aided the French constructor is the generous patronage of wealthy motorists, orders being freely placed in advance for racing cars, while those which have established their reputations find a ready sale at high figures after international contests. With every inducement to attain a higher speed in the great road races, the French manufacturer was quick to realize the value of high-grade materials and was liberal in his search for them, the most expert chemists and metallurgists being called to his aid, with results which are well known.

It is an open question whether the turning point was reached in the fatal Paris-Madrid race in 1903, or a year later, but prior to it road racing was the main factor in the development of the French touring car. That its value to France has disappeared is now freely conceded by all, and it is rapidly giving way to another class of competition.

The conditions of automobile development in America are diametrically opposite to those of France; in the first place, the roads throughout most of the country are uniformly bad; the exceptions in certain favored sections being but an immaterial proportion. There is no requirement for high-speed cars and no place for their use, the requirements being for durability and reliability, with speeds not materially over the legal maximum.

The demand on which the manufacturer must rely is not for racing cars, but for reliable and efficient touring cars of moderate speed, and the amibitious manufacturer who aspires to racing honors must rely upon his

own bank account, with the knowledge that he faces a heavy loss if he fails and no chance of a wealthy buyer for the car if he wins. That an American car has at last scored a place in an international race is due to one wealthy man, who was willing to risk a large outlay for a small prospective return; but such are too few to be counted as factors.

The history of automobile racing in France, its growth and decline, is invaluable as a guide at the present time, and by it the line of most desirable development may be clearly discerned. Avoiding before it is too late the mistake of France, a definite and permanent relation should be established between racing and touring cars. Much must be conceded in certain ways to the requirements of speed, and the way should be left open for a wide range of experiment; but all this may be done within the very simple and practical limits proposed by MR. S. D. WALDON—weight of car and piston displacement. Where speed without limit to engine power means nothing from a technical or economic standpoint, speed within reasonable limits of weight and power is a direct evidence of progress.

In establishing a class under these limitations, it is most important that in general conditions it shall be brought into the closest possible conformity with existing shop practice. The success of one special car, which is practically built in the tool room, never will be accepted as evidence of the standard of pratice throughout a shop. The conditions should be such as to favor the car that can be built — of special design in parts and of high-grade material — without disarranging the regular factory output, relying to the greatest extent possible upon the standard jigs, gauges and templets. Built under these conditions, the victory of a car in speed and endurance in a road race means that essentially the same qualities will be found in the sister touring car.

Under existing conditions the winning of a big road race is little more a matter of engineering skill than of audacity in handling excessive power, combined with success in the choice of materials and in other ways. Under such restrictions as suggested, all makers start on equal terms as to weight and power, and it is purely a matter of brains and skill in utilizing equal opportunities to better advantage.

Far from losing interest, racing under such conditions would be quite as exciting as at present, and the results, instead of being useless, would be of direct practical value.

Accessibility of Parts a Sine Qua Non. The production of a successful automobile calls for an amount of skill that is best appreciated by those who have tried it. The designer must not only proportion the various parts so that they will work together harmoniously and efficiently, with the greatest durability combined with the least weight, but he must also arrange them in such a way that the necessarily frequent examinations and the occasional repairs and adjustments that all automobiles require can be made quickly and easily. The skillful designer can assemble his machinery compactly—in fact, he *must* make the best of the limited space at his disposal—and at the same time place every bolt and nut of importance, and every working part that is likely to require inspection within easy reach so that the chauffeur will not be tempted to neglect a trifling fault because of difficulty in reaching the seat of trouble.

It is well known to automobile users that a small defect or derangement in a gasoline engine or in the gearing or bearings of a car almost invariably grows worse if neglected instead of disappearing; and obviously the most sensible way to prevent neglect is to make the remedy as easy as possible by providing means for quickly reaching each part. It is not possible, of course, to make all parts equally accessible; nor is this necessary. Those working parts that are subject to the greatest wear and strain should be the first consideration, and the engine as a whole naturally calls for the greatest care. In case of a sudden and apparently inexplicable stoppage of the engine the valve must be examined, the ignition tested, camshafts and springs inspected in order to get a clew to the cause of the stoppage; and such a process is a simple matter where all the parts are within easy reach. When the trouble has been found, it must be remedied; and this is rendered as easy as possible by making the removal of the affected part a simple, straightforward piece of work not requiring the disturbing of other parts before the one wanted can be reached.

A car that is well built of good materials but is so designed that the removal of one vital piece necessitates taking down others, is less desirable from a practical point of view than a machine that is not quite so well built but whose parts are easily got at for quick adjustments and little repairs. Attention to the small needs of the car counts for a great deal in the long run, and, per contra, neglected squeaks, knocks and grinds are apt to develop and cause serious damage, all the more exasperating because unnecessary.

VANDERBILT RACERS SAIL FOR HOME.

Foreign Drivers Banqueted Before Departing—Hemery Disqualified in Italy and France for a Year—Speculation over Next Year's Race Follows News that France Will Decline the Cup.

The second Vanderbilt cup race has passed into history; the 28-mile course on Long Island is being allowed time to cool off; and the drivers of the racing machines have dispersed, taking their cars with them.

A spectacular incident, but fortunately one that did not result as seriously as was at first believed, followed the accidental ignition of some spilled gasoline under the winning Darracq car, which Hemery, the driver, was cleaning the day after the race preparatory to taking it apart and shipping it back to France. There was a sudden fierce blaze which enveloped the car, scorching the woodwork, tires, wiring and seat cushions. There was little to burn, however, and the use of buckets of sand and fire extinguishers soon put out the blaze. That the damage to the machine was slight was proved when, the following day, the car was driven twice around the course.

Hemery is in more serious misfortune, however, for following the finish of the Florio cup race in Italy, in which he took fourth place, he became involved in a dispute with the timers, and as a result of his remarks was disqualified by the Automobile Club of Italy from racing in that country for one year. This action has since been indorsed by the Automobile Club of France, so that the daring driver of the little Darracq will not be allowed to race in either Italy or France until the latter part of next season. The A. A. A., being affiliated with the A. C. of France, will have to suspend Hemery from racing in America also.

A dinner was tendered to the contestants in the cup race by W. J. Morgan on Wednesday evening, October 18, the festivities being held in the quarters of the New York Press Club, at 116 Nassau street, New York. Lancia, Nazarri, Szisz, Chevrolet, Sartori, Cedrino, Duray, Warden, Tracy, Dingley and Christie were present. Letters of regret from W. K. Vanderbilt, and Foxhall Keene were read. The menu cards bore a picture of the Vanderbilt cup filled with champagne bottles. Gold watch fobs, bearing on one side a representation of the cup and on the other the seal of the New York Press Club, were presented to the guests.

Duray, Szisz, Hemery and Wagner of the French team, Jenatzy of the German team, and Baron A. de Turckheim of the Automobile Club of France, sailed on Thursday, October 19, on the steamer *La Savoie* for France. Heath will remain in this country for several weeks. Lancia and Nazarri, of the Italian team, took a trip to Niagara Falls before sailing for their native land on Saturday, October 21.

In view of the avowed intention of France to abstain from international automobile racing, many conjectures are being made as to what will become of the Vanderbilt cup. All this is merely speculation, however, as until an official statement has been received from France no one can know what will be done. It seems assured, however, that there will be a road race in the United States next year. E. R. Thomas, the automobile manufacturer of Buffalo, whose racing car was one of those which qualified in the Vanderbilt cup elimination race but was rejected by the cup commission, has offered a cup valued at $2,000, and to be called the "Home Industry Cup," to be raced for by American cars only, under road racing conditions. Mr. Thomas plans to have the rules drawn up by a committee consisting wholly of manufacturers. This committee will select a second committee, consisting of men who are not interested, directly or indirectly, in automobile manufacturing, to manage the race, including the selection of cars and all matters pertaining to the contest. By limiting entries to American machines, Mr. Thomas hopes to stimulate competition that will develop car construction in this country as it has abroad.

PLANTED A "DEAD-MAN" IN THE DESERT.

Megargel and Fassett Find a New Way Out of a Hole in Idaho.—They Find Sand Tires Their Salvation in the Lava Desert and Meet Old Acquaintances at Hailey.

Special Correspondence.

MONTPELIER, IDAHO, Oct. 5.—To-day and yesterday we crossed the worst mountains we have thus far encountered—the Bear River Divide and Sublette ranges of the Rocky Mountain system. Our gradometer upon several occasions touched 40 per cent., and Fassett says it registered only half enough. Our little car, loaded down until the springs touch, struggled gallantly to the top of every ridge, and although our brake leathers were on fire three different times, we reached the bottom of every mountain range right side up.

Wednesday night found us at Diamondville, Wyoming, 7,000 feet above sea level according to our barometer. It was at this point that my companion, Stanchfield, gave out on my last transcontinental tour, the extreme high altitude bringing on mountain fever. My present assistant, Fassett, although suffering from a severe cold, is still in pretty good health, and it looks as though he would last out the trip, although he doesn't appear to enjoy the snow any better than I do.

At Bitter Creek station we crossed the creek in water only a few inches deep, but it rained that night and Bitter Creek arose to the occasion—from three inches to nine feet in less than twenty-four hours. As we had to cross the stream again to resume our journey, we were laid up just four days waiting for the water to go down; then it fell almost as rapidly as it rose. We crossed in two feet of water, using our cable and a friendly sage bush root. Five miles further down, toward Rock Springs, we came to a place where a sandy canyon had been washed out to a depth of twelve feet. This held us up six hours more, and eventually we crossed on two railroad ties —pretty narrow, but accomplished safely.

From Rock Springs to Green River was an easy run, and Granger, the terminus of the Union Pacific—or, rather, the junction of the Union Pacific and Oregon Short Line —loomed in sight a few hours later.

All day to-day we have been running through sage brush as high as small Christmas trees. The stalk at the bottom of these bushes frequently measures seven inches in diameter. Sage grows on either side of the trail, and in the middle of it, also. It is very hard on copper pipes, this constant rubbing against these heavy bushes; and unless protected, the entire piping will be torn out.

Towns where gasoline can be had are many miles apart in this section, and we have had iron hoops bolted to the side of the car, which allow of the carrying of three five-gallon cans of extra fuel. Gasoline in these parts always comes in five-gallon tin cans, two cans to the case. This is put up by the Continental Oil Company, a branch of the Standard Oil Company, and sells for anywhere from 40 to 75 cents a gallon, according to how much profit the storekeeper wants to make. It costs him wholesale about 32 cents a gallon. According to an arrangement made before we started on our present trip, Mobile Oil No. 4 awaits us every 100 miles. This does away with all annoyance in this respect, for nothing hinders an automobile tour more than running out of lubricating oil.

We planted our first "dead man" last Monday—not that we have been killing anyone, but a "dead man," according to western dialect, is a piece of timber or iron so placed in the ground that a rope or cable can be fastened to it, where it would be impossible to plant a post, even if one were handy. A shallow trench is dug across the road and the stick laid in it, with the rope tied around the middle. The trench is then covered with dirt, and the "dead man" will resist a strong pull on the rope. We didn't dig the grave deep enough first time, and when the cable had been attached and we commenced to wind on the windlass Mr. Dead Man rose to the occasion and came flying back at the machine. The next time we dug the grave about eighteen inches deep, and he stayed planted until the *Mountaineer* had been hauled out of the ditch and approached to within a few feet of the grave.

ARCO, BLAINE CO., IDAHO, Oct. 11.—After a most successful eight-hour trip across the lava desert, during which we encountered neither man nor water except at the Murray ranch, near Big Butte, we arrived here late last night.

As souvenirs of our day's run we brought in with us the pelts of two coyotes, shot while crossing the lava. Had we had a little more time we could have brought in some bear skins. Deer and antelope were also seen, but the law in Idaho protects antelope, and make it a serious affair if an outsider is caught shooting deer without a license and accompanied by a licensed guide.

REO "MOUNTAINEER" FITTED WITH SAND TIRES IN THE LAVA DESERT.

It was with some misgivings that we started to cross the desert, for had any part of the machine broken down it would have meant a walk of anywhere from ten to thirty miles before aid could be secured, and then an equal amount of time would be consumed in returning to the machine with aid. That meant at least three days on the desert for the man remaining with the machine. We were well supplied with water and food, however, before starting, as we well knew the dangers of desert travel.

From Arco we go to Hailey, the next settlement, about 100 miles across country, with ranches every ten to fifteen miles. This is the wildest country in the west, and abounds in game and fish. Frequently we pass the camps of hunters and trappers, some of them eastern men out for sport and some of them western men out for gain. They are all glad to see the *Mountaineer,* and when stopping for a meal or a chat we are always treated as welcome guests.

At Pocatello there were two automobiles in use on the streets, and at Hailey there are three in use; so no matter how remote the towns, the automobile is no longer a stranger, although our *Reo* is the largest car that has ever been seen in these Idaho settlements, all the machines owned out here being runabouts of limited horsepower.

It is expected that Portland will be reached about October 20, although this will depend entirely upon the depth of snow encountered in crossing the Cascades—the highest mountain range.

HAILEY, IDA., Oct 16.—Our route from Arco to the town of Hailey brought us through the most mountainous region of the state, and hill after hill, whose tops touched the clouds, was mounted by the little touring car.

Our first night out was spent at Cottonwood, the ranch at which Dr. Jackson put up when he came across in the Winton two years ago and where Stanchfield and the writer stayed over night on our transcontinental in *Old Steady.* Mr. and Mrs. Drake recognized an old acquaintance when the *Mountaineer* came puffing up to the door, and the good woman at once made preparations for supper, her meals being famous throughout this part of the state. After supper our host entertained us with bear stories, for before he took up ranching he had made his living for years hunting and trapping. He has a record of 240 bears in one year, trapped and shot in Colorado when that state paid a handsome bounty on bears.

Hailey is surrounded on all sides by high mountains whose tops are covered with snow to the depth of several inches. But this is nothing to cause alarm, as they frequently show snow in July and even August. Although the town has only about 1,200 inhabitants, it supports two daily papers and two weekly publications, the editors of which ran out after our car to secure the leading news item for the day's edition.

Rich mineral mines are located in all the surrounding hills, and the Reo encountered the best roads she has struck west of

Omaha, and the inhabitants are proud of their good roads. Four, six, eight and ten-horse wagon trains, loaded with all the necessaries of life, are passed every few miles, while other outfits are loaded with ore for one of the several smelters.

PERCY F. MEGARGEL.

AUTO BOARD'S REPORT.

Recommends that District of Columbia Copy State Registration Clauses.

Special Correspondence.

WASHINGTON, D. C., Oct. 23.—More than ordinary interest attaches to the second annual report of the automobile board of the District of Columbia, just submitted, for the reason that it contains a number of recommendations which, if adopted by the District commissioners, will make the automobile regulations in Washington more onerous than ever.

The board recommends that hereafter a fee of $1 be required for registration and assignment of an identification number, and that a similar fee be demanded for each permit issued, such fees to include seal and badge mentioned elsewhere in the report.

It recommends that the commissioners adopt this new regulation: "That on the assignment of a permit number to an automobile the secretary of the automobile board shall issue and deliver to the owner of such motor vehicle a seal of aluminum or other suitable metal, which shall be circular in form, approximately two inches in diameter, and have stamped thereon the words 'Registered Motor Vehicle, District of Columbia,' with the registration number inserted therein, which shall thereafter at all times be conspicuously displayed on the motor vehicle to which such number has been assigned. Upon the sale of said motor vehicle the vendor shall report immediately such sale and return the registration seal affixed to such motor vehicle, and, further, that all motor vehicles owned and operated in the District of Columbia be required to procure and display such registration seal."

With a view to keeping chauffeurs in check the board recommends that an aluminum badge hereafter be issued to such non-owners or chauffeurs, the badge to be stamped with the words "Registered Chauffeur. No. —, District of Columbia," which must be worn in a conspicuous place on the clothing, and which must not be transferred.

The report states that the recently adopted regulation requiring professional chauffeurs to file certificates of good character, indorsed by three citizens, has been of benefit, those to whom permits have been issued being, in the majority of cases, careful to observe the regulations.

The statistical part of the report, which is for the fiscal year ending June 30, 1905, shows, among other things, that during that period 667 applicants were examined, to all of whom permits were granted to operate automobiles within the District. Identification numbers were issued in 468 cases, while numbers were authorized to be transferred from former owners of 168 machines to new owners. Touring permits to sixty-eight owners from other states were granted during the year, as follows: New York, 26; Massachusetts, 13; Pennsylvania, 10; Maryland 9; New Jersey, 7; Ohio, 2, and Connecticut, 1. Of the 468 new cars registered during the year, 137 were electric, 393 gasoline, 109 steam, and 28 motorcycles.

The regulation allowing non-resident automobilists to operate their cars in the District of Columbia for a period of sixty days without registering them was favorably commented upon by everyone who secured the privilege.

KANSAS CITY LAW IS HELD INVALID.

Circuit Court Judge Condemns System of Examination and Licensing, and Says a Person Cannot Be Made a Witness Against Himself, but He Upholds Vehicle Tax on Autos.

Special Correspondence.

KANSAS CITY, Oct. 21.—In the circuit court here recently, Judge Brumback declared unconstitutional the city ordinance regulating the speed of automobiles and providing various regulations regarding them. He also issued a temporary injunction enjoining the city authorities from enforcing the ordinance.

The ordinance permitting the imposition of a yearly vehicle tax of $5 on each car was upheld. The Kansas City Automobile Club had attacked the vehicle tax on the ground that the ordinance provides only for the taxation of carriages and vehicles, and does not specifically mention automobiles. Judge Brumback held that motor cars might properly be included under the term "carriages," as the ordinance in no instance names the motive power of any vehicle.

As to the speed ordinance, the judge held that certain of its provisions were unreasonable, oppressive and unconstitutional in not affording equal protection in law. He held, however, that the city had the right to pass an ordinance regulating motors, but said it must be so drawn as to be constitutional.

The feature of the ordinance providing for the examination of operators was held unjust, in the following words:

"The examination provided for does not distinguish between operators in charge of different classes of cars, and the board may require a person desiring to operate an electric automobile to pass an examination upon a steam engine, or vice versa, as but one kind of license is provided for; and another person who, by the favoritism of the board, may be examined upon an electric automobile, which requires simply knowledge enough to steer it, may, by virtue of his license, run a high-powered, dangerous machine of another character. I cannot regard any such arrangement as affording any reasonable protection whatever to the public."

Objection is also made by the judge because the board of licensing examiners is not composed of persons having any skill to judge of the qualifications of operators.

On the rights of the city to require an examination, the opinion says:

"I cannot but agree with the contention of counsel for the plaintiff that the city has no power to require operators to qualify. I consider it plainly apparent that high-power vehicles operated by the dangerous agencies of gasoline and steam or high-speed vehicles (?) operated by electricity are sources of danger in the hands of persons not properly trained, and that skill and experience may properly be required of operators thereof."

Regarding the section of the ordinance which requires the operator of a car to stop when this is demanded by the driver of a horse, the court says:

"It makes a person lawfully entitled to the use of a highway, subject without appeal, to the whim and caprice of some other person.

"The provision of the ordinance that, upon any accident happening it shall be the duty of the operator of the automobile to come to a full stop and give the owner or person injured or person in charge of the vehicle a card with his name, license and number written thereon, appears to me to be a plain attempt to make a person a witness against himself, and is therefore unconstitutional."

TO SUPPRESS AUTO THIEVES.

Special Correspondence.

MINNEAPOLIS, Oct. 21.—A meeting of automobile owners of this city is soon to be held at the Commercial Club to discuss means for putting a stop to an annoying practice of practical jokers, who think it great sport to "borrow" a friend's auto when they find it standing by the curb unattended in the public street. It sometimes happens that the machine temporarily appropriated does not belong to the friend, but is a car of the same make owned by another. Besides the practical jokers, there are some automobile thieves in the city, and it is not easy to distinguish between them.

It is proposed to levy an assessment on the car owners and employ a detective whose services can be secured without additional cost by any member of the proposed association who has his car taken.

HOLD UPS AROUND ALBANY.

Special Correspondence.

ALBANY, Oct. 23.—Several Albany automobile owners who have toured across the river in Rensselaer and Columbia counties and in western Massachusetts, have had some exciting experiences recently with horse owners who have held them up with revolvers to compel the drivers of the cars to stop while the farmers' frightened horses were led past. Automobilists have also had trouble with constables and local justices over in Massachusetts, who have arrested them and fined them $25 for violating speed laws. One justice told an Albany motorist that the residents had to pay for the roads in Massachusetts and proposed to make autoists from out of the state pay handsomely for using them.

OPPOSED TO GOOD ROADS.

Special Correspondence.

CHAMPAIGN, ILL., Oct. 23.—The farmers of Mahomet township, Champaign county, Ill., have organized the Mahomet Anti-Hard Roads League, with sixty-five members, all of whom have pledged themselves to vote for no candidate who is in favor of state aid for highway improvement. This unique association is formed almost in the shadow of the University of Illinois, an institution that has stood in the forefront of the good roads movement that still lives in the state. In this case there seems to have been no parleying between Mahomet and the mountain. Mahomet moved right over of his own will.

SHOW SPACE IN DEMAND.

The management of the Automobile Club of America show, to be held in the new Sixty-ninth Regiment Armory, New York, next January, announces that more than 45,000 square feet of space has already been applied for. The drill hall, or main floor, will be used for pleasure cars; parts and accessories will occupy the galleries; and the commercial cars—trucks, delivery wagons and so on—will be placed in the basement. The building will be fireproof throughout, a fact that will have a very beneficial effect on the insurance rates. Owing to the arrangement whereby one-third of the net profits will be divided among the exhibitors in amounts proportionate to the spaces taken, it is anticipated that the total outlay of each exhibitor will be considerably reduced.

TESTS MUST BE APPROVED.

N. A. A. M. Resolution Meets Approval of Members.

Replies received by mail from members of the National Association of Automobile Manufacturers indicate that they heartily approve of the following resolution adopted by the executive committee on October 6:

"RESOLVED, that this association is opposed to the holding of contests which have not been approved by its executive committee, and that it shall not be permissible for any member to take part in any such unapproved contest under penalty of being debarred from participation in such events as may be held with the approval of, or under the auspices of, this association."

The committee is now further sounding the sentiments of the members along the same line for next year in a circular letter propounding the following inquiries:

"1. Are you in favor of the adoption of a resolution requiring members to refrain from participating in road contests, such as competitive tours, endurance tests, economy tests, etc., which have not been approved by this association?

"2. Do you favor a penalty for the infraction of such a rule, if passed; for example, refusal to permit transgressors to take part in such events as are approved by the association?

"3. If such a resolution is passed, may we rely upon you to abide by its provisions?"

The next meeting of the executive committee will be held on the first day of November.

ECONOMY TEST NEXT WEEK.

Ten entries have been received for the economy test organized by the New York Motor Club, as follows: Four Franklin cars of different types, two Reo cars, one Frayer-Miller, two Compound cars, and one Marmon, making in all six air-cooled cars and four water-cooled. It is announced that a number of other manufacturers have also signified their intention of competing. Revised rules for the contest have been issued since the postponement of the event from the week of October 23 to that of October 30. These show a number of changes, including drastic provisions against speeding, the allotment of oil and fuel charges on the basis of the schedule adopted by the New York Automobile Trade Association, and other points. The program includes a two-day run from New York to Philadelphia and return, another two-day run to Albany and back, returning probably by a different route, and a third two-day run from New York to Southampton, Long Island, and return. Nightly sessions are being held this week by the contest committee to arrange the details of running rules, to appoint officials and to settle other points in connection with the competition.

A STOCK CAR RACE MEET.

The New Jersey Automobile and Motor Club, of Newark, N. J., will hold its third annual race meet at Waverly Park on Tuesday, November 7, the first event to start at 1:30 P. M. The events, which are for stock cars only, include a five-mile handicap, free for all, for motorcycles; three-mile race for stripped single-cylinder cars; five-mile free for all for regularly equipped cars; five-mile race for touring cars costing $4,000 or less, with regular equipment, carrying four passengers weighing at least 125 pounds each; five-mile race for fully equipped cars costing $1,500 or less; the New Jersey Automobile and Motor Club handicap at five miles, for regularly equipped cars, and a gymkhana race.

The first and second machines in each event, excepting the motorcycle race, will be eligible for the N. J. A. and M. C. handicap, the prize in which is a cup to be raced for annually for five years, the driver with the greatest number of wins to his credit to be given the cup at the end of that time. Each winner will receive a gold medal and his name will be engraved on the cup.

Entry blanks and information may be obtained from Secretary C. S. Wells, 717 Prudential Building, Newark, N. J.; entries close Saturday, November 4.

BEACH RACES IN NOVEMBER.

Special Correspondence.

ATLANTIC CITY, Oct. 23.—Chairman Walter Edge, of the Atlantic City Automobile Club's racing board, announces that the final series of beach races over the Ventnor course, for the present season, has been fixed for Monday and Tuesday, November 13 and 14. Tracy, Campbell, Cedrino and several other competitors in the Vanderbilt cup race, have entered, and the hope of the promoters that world's short-distance records will be brought here before winter, seems in a fair way of being realized, as the beach is never in better condition than during the Indian summer days of November.

RACES AT POINT BREEZE.

Special Correspondence.

PHILADELPHIA, Oct. 23.—On Thursday next the local association of automobile dealers will have a race meet at the Point Breeze track, the only event of the kind held here this year. Nine events are on the program, including a match race for $500 a side between Harry Edwards' Reo and C. W. Sprague's Buick. The race will be at five miles, an agreement being made that in the event of tire troubles to either car the race is to be run over. The other events are all for stock cars, no entries of racing machines having been solicited.

INDIANAPOLIS MEET POSTPONED.

Special Correspondence.

INDIANAPOLIS, Oct. 23.—Rain and bad weather placed the track at the Indiana State Fair Grounds in such condition last Friday that the Indianapolis Automobile Racing Association was compelled to change the date of its fall race meet from Saturday, October 21, to Wednesday, October 25. The program arranged is the strongest ever offered in Indianapolis, the postponement, though a great disappointment, resulting in a number of strong additional entries being made.

DELAWARE RIVER LAUNCH RACES.

Special Correspondence.

PHILADELPHIA, Oct. 23.—The feature of last Saturday's races of the Riverton Yacht Club, on the Delaware River, was the performance in the Class B contest of the *Hupa* which, starting from scratch in a field of seven, covered the eleven-mile course in 30:24. Such fast craft as the *Simplex III*, of New York, and the *Walkaway*, of this city, were given upwards of seven minutes' start of the *Hupa*, and had the course been a half-mile longer, they would have been beaten. As it was, they managed to beat her by 10 minutes and 48 minutes, respectively.

America is not the only land of cheap watches. An English magistrate recently fined an automobilist for fast driving on the evidence of a watch that cost about $1.25.

WASHINGTON CLUB RUN.

Ten Cars of New Club Participate in Trip to Frederick.

Special Correspondence.

WASHINGTON, D. C., Oct. 23.—Aside from the small number of participants, the first run of the Automobile Club of Washington to the county fair at Frederick, Md., on October 19, was a big success, and it will undoubtedly be followed at frequent intervals with runs to other interesting points within a radius of 100 miles of Washington.

Every car of the ten that started made the round trip and there was an entire absence of stops on account of tire or mechanical troubles. A Cadillac touring car containing a party from Baltimore joined the Washingtonians a few miles this side of Frederick, and the driver was unfortunate enough to run his car into a soft spot, causing the machine to skid and throw out the occupants. One of the passengers had his arm broken.

A 45-horsepower Pope-Toledo, with Royce Hough at the wheel, and having as passengers a number of newspaper men, was the pilot car. The start was made at 8 o'clock. A slight rain during the early morning served to lay the dust and made the roads nearly perfect. In quick succession the towns of Olney, Latonsville, Ridgeville and Newmarket were passed, and the pilot car entered the outskirts of Frederick, fifty-three miles from Washington. Beyond Ridgeville the country is somewhat hilly. Nothing finer in the way of scenery can be imagined than along this road, and the country in this section is rich in historical interest.

Frederick is the county seat of Frederick county. It is situated on Carroll's Creek, a tributary of the Monocacy, and is one of the oldest towns in Maryland. After seeing the fair, the automobilists visited a number of historical places in the picturesque old town, and then made the homeward trip.

The cars participating in the run included two Pope-Toledos, two Pope-Tribunes, three Cadillacs, a Peerless, a Haynes-Apperson and a Stanley steamer.

INDIANA CLUB DINES.

Members Attend Banquet in Indianapolis and Discuss Clubhouse Project.

Special Correspondence.

INDIANAPOLIS, Oct., 23.—The first of a series of banquets to be given by it during the coming winter, was given by the A. C. of Indiana at the Denison Hotel, Indianapolis, Friday night, October 20. Covers were laid for about sixty guests, including persons from many points of Indiana, with the greater number from Indianapolis. The menu cards were in the form of a castiron wheel with tiny rubber tires. with the menu neatly printed between the spokes.

Many matters of interest were discussed informally, the most important being the project for a new clubhouse. The club has been without a permanent home, although it numbers in its membership several hundred of the most enthusiastic motorists in the State. A committee consisting of F. M. Hobblitt, Gus Kevers, L. M. Wainwright. Frank Staley and Carl G. Fisher, was appointed to decide the feasibility of erecting a clubhouse either in Indianapolis or in the country within a few miles of the city.

An interesting discussion on tires was led by H. O. Smith. A run is planned by the club to be held at some date in the near future.

ORPHANS' DAY IN BALTIMORE.

More than 300 Children Enjoy Ride Through Druid's Hill Park.

Special Correspondence.

BALTIMORE, Oct. 23.—The first annual orphans' outing and automobile parade under the auspices of the Automobile Club of Maryland, was held last Saturday afternoon, seventy-five cars, belonging to members of the club and others, participating. More than 300 children from five or six orphanages of the city were accommodated and the affair was eminently successful, in spite of the cool weather, which nipped the noses and reddened the cheeks of the little ones.

Prior to the trip through Druid Hill Park and out a country road for eight or nine miles, a prearranged route was followed through the heart of the city. The cars also passed the zoo in the park, so that the children might see some of the animals. Many of the autos in the parade were gaily decorated with flags and vari-colored paper, and 500 dahlia blooms, donated by a local seed merchant, were distributed among the children. An attendant accompanied each automobile. The committee in charge of the outing was composed of Messrs. H. M. Rowe, F. W. Darling and George S. Dickey.

It is contemplated to repeat the outing annually, and the success of this one leads the club to believe that the response of automobile owners to the call for cars will be even wider in the future.

CHICAGO CLUB TICKET.

Special Correspondence.

CHICAGO, Oct. 21.—The nominating committee of the Chicago Automobile Club submitted its slate last Thursday to the board of directors, who approved the ticket. It will be voted on at the annual meeting of the club on November 9.

John Farson, of Oak Park, who has already served two years as president of the organization, having preceded Ira M. Cobe, was nominated for president. He has stated that he would accept the office again if elected. Sydney S. Gorham, as secretary, is the only one on the list who held office this year. It was the wish of the committee to have Ira M. Cobe on the ticket again as executive officer, but he declined on the ground of lack of time. The ticket in its complete form follows:

President, John Farson; first vice-president, Allen S. Ray; second vice-president, B. H. Marshall; secretary, Sydney S. Gorham; treasurer, T. J. Hyman; directors, Ira M. Cobe, R. Tarrant, Jr., F. C. Donald, N. H. Van Sicklen, Jerome A. Ellis and Charles E. Gregory.

There is considerable talk of putting a members' ticket before the club at its election, and Jerome Ellis is being mentioned as the probable candidate for president.

AERO CLUB OF AMERICA.

About seventy members of the Automobile Club of America, who are enthusiasts on the subject of aerial travel, have formed what will be known as the Aero Club of America, the purpose of which will be to advance the development of the science of aeronautics and to encourage all kinds of aerial navigation, in furtherment of which the club will arrange for an air-ship race next spring. The following officers were elected: Captain Homer W. Hedge, president; John F. O'Rourke, first vice-president; C. J. Glidden, second vice-president; Augustus Post, treasurer, and S. M. Butler, secretary.

AUTO PARADE IN ALBANY.

Special Correspondence.

ALBANY, Oct. 23.—The Albany Automobile Club has arranged to hold its annual parade on the afternoon of October 31, in conjunction with the All Halloween festival which is becoming a very elaborate celebration in this city. The All Halloween Carnival Association has given $175 for prizes and authorized the automobile club to advertise the award of prizes to the best decorated car as follows: First prize, $75; second, $50; third $25; fourth $15.

Invitations have been sent out to automobilists in and around Albany to participate in the parade. The parade committee consists of Joseph B. Taylor, F. H. Fisk, Jr., Edward Leahy, Roy Robinson, Archibald J. McClure.

WOMEN DRIVERS IN KANKAKEE.

Special Correspondence.

KANKAKEE, ILL., Oct. 23.—Several of the wives of members of the recently organized Kankakee A. C. have become enthusiastic auto drivers. Among these women drivers are Mrs. W. R. Hickox, Mrs. J. Peschel, Mrs. E. A. Lecour, Mrs. L. P. Lecour, Mrs. Thomas A. Kerr and Mrs W. L. Rankin.

The club has twenty-eight members, mainly professional and business men. E. C. Holmes is president and C. H. Cobb is secretary. The members are using Cadillac, Peerless, Thomas, Olds, Rambler and White cars. There is a movement now to substitute most of them with higher power, four cylinders being the aim.

The roads are in good condition and there are some beautiful routes, one along the Kankakee river to Momence, and another leads along the same stream to Wilmington. Chicago is seventy-five miles from Kankakee by auto, and the members drive the distance in three or four hours.

Indications are that the club will grow considerably next year.

PARADE OF AUTOS IN CEDAR RAPIDS UPON OCCASION OF RECENT RACE MEET.

October 3 was automobile day at the Cedar Rapids (Iowa) Carnival, and members of automobile clubs from outlying towns joined the members of the Cedar Rapids Automobile Club in their efforts to make the affair a success. A parade was held in the afternoon, through Cedar Rapids' beautiful thoroughfares, and a large number of cars were in line. One of the most popular automobilists in line was little Miss Hazel Henderson, who although but ten years of age, drove her large Rambler car with the confidence and skill of a profesisonal chauffeur. The Cedar Rapids club members under whose auspices the meet was held, were enthusiastic over the success of the affair.

NEWS NOTES OF THE CLUBS.

NEW YORK.—Preceding his departure by boat from New York on Tuesday to resume his "Around the World Tour," Charles J. Glidden, of Boston, addressed the members of the Automobile Club of America Monday night on his familiar topic: "Touring the World in a Motor Car." His speech dealt this time with the southern hemisphere, embracing the Fiji Islands, New Zealand, Tasmania, Australia and Java, and was illustrated by more than 200 lantern slides from photographs taken by Mr. Glidden during his last trip.

CHICAGO.—The Chicago A. C. recently received a communication from the Minneapolis A. C. in reference to chartering a special train to go to the Ormond Daytona races in January. The plan as proposed is to invite such clubs as the Indianapolis, Louisville and Grand Rapids organizations to join forces with the Twin City and Chicago clubs to make the trip in a body. The train would consist of the regulation sleepers, diner, drawing room, observation and baggage cars, and would remain at Ormond until the party was ready to return. The Chicago club has sent out circulars to all its members to find out how many would be desirous of going.

WORCESTER, MASS.—One hundred and thirty members of the Worcester A. C. attended an entertainment at a newly opened theatre in this city on Wednesday evening October 11 as the guests of C. W. Fonda, resident manager. The entertainment was thoroughly enjoyed, and everyone would have been happy but for the absence of M. Percival Whittall, chairman of the runs and tours committee. Mr. Whittall lives in Leicester. Just before the close of the entertainment the following telegram from Mr. Whittall in Leicester was read to those present: "Sorry I cannot be with you to-night. Quinn has got me at last for overspeeding and refuses to take bail." Quinn is the notorious constable who held up the Glidden tourists on their return trip from the White Mountains.

BALTIMORE.—The annual meeting of the A. C. of Maryland for the purpose of electing officers was held recently at the Hotel Altamont, with the following result: W. S. Belding, president; Richard J. Leupold, vice-president; George S. Dickey, secretary, and Ernest J. Knabe, Jr., treasurer. All of the officers of last year were re-elected except Secretary C. Warner Stork. The following committees were appointed: Laws, Messrs. Yellott, Keyser and Reese; printing, Messrs. Peard, Carr and Reese; auditing, Messrs. Primrose, Detrick, Williams and Hollingsworth; membership, Messrs. Knabe, Stork and Detrick; contests, Messrs. Darling, Miller and Rowe; house, Messrs. Thomas, Rowe, Primrose and Leupold. An effort will be made to have a bill introduced at the next meeting of the legislature to compel all vehicles to carry lights. In spite of inclement weather a fair number of members attended the election.

CHICAGO AGENCY CHANGES.

Annual Transfers Attract Attention—White and Ford to Build Branch Houses.

Special Correspondence.

CHICAGO, Oct. 23.—Chicago's "automobile row" has witnessed many changes of agencies during the past few weeks; in fact, there have been so many that it has aroused the interest of the trade everywhere. The tendency in Chicago seems to be a general switching around at the end of each season.

Fred P. Brand has taken charge of Apperson Brothers' Chicago branch, Jack Fry, who up to Monday had charge of it, having gone to Colorado to recuperate his health.

Ralph Temple has relinquished the Franklin agency, and is now handling the Premier and the Reo, and is importing Panhards direct from France. The Premier was handled heretofore by the Bennett-Bird Company, which has no agency at present, but is negotiating with several firms and expects to take up one soon. The Reo was formerly handled by a joint company composed of Miss Andrews, C. A. Coey and a banker by the name of Foster. The Franklin agency has been given to Halsey Brothers, of St. Louis, who will open a Chicago house.

The White Sewing Machine Company will open a Chicago branch under the management of Webb Jay, erecting a building of its own in the near future. The company has temporary headquarters with the Pardee-Ullman Company, which handled the steamer last year. The latter company now has only the Packard and the Baker electric.

E. G. Sykes has resigned his position as superintendent of the Chicago branch of the Locomobile Company of America, and A. J. Banta took his place the first part of last week.

The agency for the Royal Tourist, formerly held by the Barnstetter Automobile Company, has been given to the McDuffie Automobile Company, which is erecting a new building south of its present headquarters, to be ready for occupancy about February 1.

The Ford Motor Company of Detroit has entered the Chicago field, and occupies the old quarters of the Columbia Vehicle Company as temporary headquarters. It is the intention of the Ford people to build in the near future. C. C. Meade, lately of New York, is temporarily in charge.

EXPOSITION CAR ITINERARY.

Because of misstatements which have appeared in the press relative to the itinerary of the exposition car which the Winton Motor Carriage Company is using as a traveling salesroom, in which to exhibit new models, the company has issued the following authoritative itinerary:

Kansas City, October 28 and 29; Denver, October 31 to November 3; Salt Lake City, November 5; Sacramento, November 7; Stockton, November 8; San Francisco, November 9 to 12; San Jose, November 13; Fresno, November 14; Los Angeles, November 15 to 18.

BIG GARAGE FOR THOMAS CARS.

Work will soon be commenced on a large new garage which is to be erected on the southeast corner of Broadway and Sixty-third street, New York, for the sale and storage of Thomas cars. E. R. Thomas, of Buffalo, has purchased the land, and the building will be erected by the building firm of Haupt & Phinney. Harry Haupt, New York agent for the Thomas machines, has arranged to handle the Thomas cars for the next five years, and has planned the garage on a liberal scale. With its four stories and basement, a frontage of 114 feet on Broadway and 145 feet on Sixty-third street, the building will have accommodation for about 500 cars, and still have three stores to lease on Broadway; the corner store will be used by Mr. Haupt as a salesroom for cars. As it is proposed to occupy the building about April 1, work will be commenced very soon.

FINE GARAGES FOR BALTIMORE.

Special Correspondence.

BALTIMORE, Oct. 23.—The Mar-Del Mobile Company, of Baltimore, has broken ground for the erection of a fine garage and salesroom on a lot fronting 150 feet on Charles street and 150 feet on Mt. Royal avenue. The contract calls for a three-story building with basement, of reinforced concrete construction, with front of stone and brick. The first-story fronts, on both streets, will be mostly of plate glass, so that automobiles can be advantageously displayed. The second floor will be occupied by the Automobile Club of Maryland, and will include reception, reading and smoking rooms and a ladies' parlor.

The lot west of the Mar-Del property has been acquired by M. Gillet Gill, for the Motor Car Company, where an automobile establishment will also be conducted. Both properties are extremely desirable, for Mt. Royal avenue is the best paved thoroughfare of the city, and, besides leading to Druid Hill Park, crosses all of the principal streets of the city. The two buildings will take up an entire block on the avenue front. It is reported that the Gill company, whose plans are not yet generally known, will expend over $100,000 in the erection of its establishment.

NEW OLDS BOSTON AGENT.

The Adams-Sutton Motor Company has been incorporated with a capital stock of $40,000 to handle the product of the Olds Motor Works in Boston. The president and manager is Walter O. Adams, formerly general manager of the Crest Manufacturing Co., of Cambridge, and later assistant sales manager of the Ford Motor Co., of Detroit. In entering upon the new connection, he resigns the position of foreign agency director with the Olds Motor Works of Lansing. Davis Sutton, the secretary-treasurer, returns to Boston from the office of the Canadian Bridge Company at Walkerville, Ontario. The company will occupy large quarters in the new Motor Mart in Park Square, and will be ready to show the new Oldsmobile cars during the latter part of November. The Oldsmobile commercial cars will be given especial attention, Mr. Adams having this department under his personal direction.

NEW YORK CADILLAC GARAGE.

Contract has just been let by Walter C. Martin, president of the Cadillac Company of New York, metropolitan agent for Cadillac cars, for the erection of a fine fireproof garage building situated on the corner of 62d street and Broadway. It will have a frontage of 52 feet on Broadway and 72 feet on 62d street. It will cover 20,000 square feet of ground, and will consist of four stories and a basement, all devoted entirely to the Cadillac business. It will be equipped with the latest steel elevators, lighted on three sides through large plate windows, and fitted throughout with every modern convenience. It is to be ready for occupancy by February 1. The cost is estimated at $300,000.

TRI-CITY ACTIVITY.

New Models Under Way in Moline—Attractive Drives About Davenport.

Special Correspondence.

MOLINE, ILL., Oct. 23.—There promises to be a season of great automobile activity in the cities of Moline, Rock Island and Davenport next year.

At Moline the Moline Automobile Company has sold every machine that it built this year, and is now preparing to go to work on three new models for next season. It is occupying a building 60 by 300 feet, and is now building another 40 by 165 feet.

The feature of car building for next year's business will be the greatly advanced prices. A jump from $1,750 to $2,500 will be made on one of the machines. It is planned to invade eastern territory with the new models.

The 1906 Moline, model A, will have a four-cylinder vertical, water-cooled engine, 4 1-2 inch bore by 5 inch stroke, developing 30-35 horsepower. The body will seat five passengers, and has double side entrance, with divided front seats. It is planned to build fifty of these machines.

Model C will have a four-cylinder motor, water-cooled engine of 3 3-4 inch bore by 4 1-2 inch stroke, developing 18-20 horsepower. The body will be a side entrance tonneau with a divided front seat. The company expects to build 200 of these cars. It will also manufacture a lower priced machine that is to known as 1906 Model G. It will be equipped with a double-cylinder. water-cooled, horizontal opposed motor under the body, 4 3-4 inch bore and 5-inch stroke. Model G will have a detachable tonneau body with divided front seat.

All the cylinders for the motors of these machines are ground after being bored and reamed. The works are located at East Moline, and promise to become the most extensive in this section of the Mississippi River valley. A quarter-mile testing track will be provided.

In the three cities of Moline, Rock Island and Davenport, there are now more than 100 automobiles, among them some of the finest machines produced. Davenport has an auto club, and plans have been drawn for a capacious garage.

There are hereabouts some of the most attractive auto drives in the west. One leads over a stone road from Davenport to Clinton. forty miles long. There is another to Muscatine, twenty-five miles.

Automobile owners are getting along famously with their country cousins. It is predicted that it will not be long until some of the more prosperous Hawkeye soil tillers will be driving their produce to market in devil wagons modeled after farm wagons.

TO MARKET DELIVERY WAGONS.

Special Correspondence.

GRAND RAPIDS, MICH., Oct. 23.—The Soules Motor Car Company, recently organized in this city for the purpose of manufacturing light delivery vehicles, has let a contract for the manufacture of twenty-five wagons to the Michigan Automobile Company, of Kalamazoo. If these find ready sale, an order for 300 cars for next year's delivery will be let. The company will eventually manufacture the wagons itself, but have not yet secured a location for a factory. The cars are extremely light, weighing but 1,250 pounds, and are built to run at a speed of fifteen miles an hour. They embody all the characteristics of a light delivery wagon. The officers of the company are H. G. Dykhouse, president; David Wolf, secretary and treasurer, and J. E. Soules, manager.

News and Trade Miscellany.

At the convention of street car employees recently held in Chicago, $20,000 was appropriated to purchase automobiles which are to be put into service during any strike of the union, to carry passengers from place to place. The money received in fares will be put into the defense fund, from which the money appropriated was drawn.

The New York firm of Smith & Mabley formally opened its magnificent new automobile salon at Broadway and Fifty-sixth street, on Tuesday, October 17, when a large number of persons took advantage of the occasion to view the new quarters of the company.

Two auto 'buses are now in operation in Lansing, Mich., between the depot and the hotels. J. A. Carr & Co. have placed in operation an Olds auto 'bus with a seating capacity of twelve persons. W. H. Porter is the proprietor of the other 'bus, which is a Reo, and also has a seating capacity of twelve. The cost to the patrons will not be increased, and the saving in time will no doubt be appreciated by the traveling public.

North and South Dakota are being invaded by the automobile, according to Maurice Wolfe, Dakota manager of the Pence Automobile Company, of Minneapolis. Most of the large land companies are using the machines to take their clients about the country. In the past it was necessary to make long trips on horseback or in buggies to see the country, and much time was wasted. Many of the large land firms have bought several cars for this work. Mr. Wolfe states that two cars are being used in the Bad Lands, and ground is covered in one day which formerly took three or four days. He also declares that with the more prosperous farmers of the country the automobile as a means of travel is fast taking the place of the horse.

The Worcester (Mass.) Automobile Dealers' Association is considering the advisability of holding a three days' show in Worcester in December or January. This is the first season the local dealers have been organized, and so great have the sales been this season in vicinity that an exhibition of some sort is deemed necessary, although Boston and its big show is near at hand. The dealers and the local club will no doubt work hand and hand in the matter. There are seven dealers at present in the association.

The 40-horsepower Decauville racer with which Guy Vaughan has won so many races during the last three years, and which was the car used in the making of the 1,000-mile and the 24-hour records by the young driver at Empire City track this year, has been sold by the Decauville Automobile Company, to Dr. A. F. Morris, of New York, who will use the racer in beach and track races in the future.

G. H. Curtiss, manufacturer of Curtiss motorcycles, is negotiating for the removal of his factory from Hammondsport, N. Y., to Rochester. Mr. Curtiss intends to manufacture his own motors in the future. Until now they have been made by the Kirkham Motor Works, in Bath. The force of employees will be doubled and the plant considerably enlarged. Mr. Curtiss holds several motorcycle records.

Ralph Temple, of Chicago, has secured the agency for the Reo cars in that city.

In addition to the Y. M. C. A. automobile school in Worcester, Mass., which this year enters upon its second term, another, to be known as the Harrington automobile school, has been opened on Central street by the Harrington automobile station. Instruction work will be carried on under the direction of John S. Harrington. Mr. Harrington, whose station is one of the largest in the city, says that he cannot supply purchasers of his cars fast enough with competent drivers, and for this reason deemed it advisable to open the school.

George Vernor Rogers, secretary of the Mitchell Motor Car Company, of Racine, Wis., recently spent some time in Havana in the interests of his concern. The Havana agency for this company has been turned over to the West Indies Transportation Company, of which Mr. Barnhardt is the general superintendent.

Ground has been broken for the new home of the Rambler in Minneapolis. L. H. Fawkes has the agency, and will erect a neat brick veneered building on Sixth street, between First and Second avenues. Mr. Fawkes is one of the automobile dealers who graduated from the bicycle trade, being one of the first to recognize the business opportunities that the automobile offered.

The E. R. Thomas Motor Co., of Buffalo, will build a racing car of 120 horsepower for the racing season of 1906; the new machine will be driven by M. Roberts, who handled the Thomas six-cylinder car in the Vanderbilt cup elimination trials. The car that took part in the elimination trials will also race next season in events for which it is eligible.

The White Sewing Machine Company, of Cleveland, O., has leased the building in Philadelphia formerly occupied by the Bankers, and with E. C. Johnson, formerly of the Quaker City Automobile Company, as manager, is preparing to wage a vigorous campaign in 1906.

A machine that will shortly be seen for the first time in America is the Dutch Spyker car. Sidney S. Dixon, of London, is now at the St. Regis in New York, for the purpose of arranging for an American agency. A feature of the Spyker that has attracted attention is that it raises practically no dust when on the road. There is a smooth metal pan under the engine, and every part of the underbody is arranged to facilitate the passage of air currents and prevent the formation of eddies; the exhaust is so directed that it does not tend to raise dust.

Automobile dealers in Pittsburg are complaining bitterly of the inroads which the department stores are making in the supply business. A few years ago these stores did not carry any automobile fittings, and the regular dealers had it all their own way. Now several of the stores carry tires, lamps and clothing. They have been advertising them this season in a way that has taken thousands of dollars from the regular dealers. It is claimed that the supplies carried by most of these stores are inferior in quality, and that in the end the automobile owners come back to the garages for their repairs, but in the meantime the dealers are losing much trade.

Philadelphia's numerous "Seeing Philadelphia" cars are in use every night by the campaigners working in the interests of the new City Party. Mass meetings are held in several locations each night, the orators, with music and fireworks, moving from point to point previously advertised.

The Hayes Manufacturing Company of Detroit expects to move into its new plant early in November. Two brick buildings are being erected. The main building is 200 by 100 feet, and besides the offices and sample rooms contains the cutting and stamping department, assembly room, and a large foundry. This building will be devoted entirely to the manufacture of hoods, metal dashes, mud guards, tanks, sheet metal specialties and forged irons. Another building, 150 by 100 feet, is devoted entirely to enameling the various parts, and contains three large ovens. Hoods, guards and running gears will be enabeled in colors to match those of any make of car. It has been found that parts coming in contact with the heat of the radiator, or parts like the running gears, which receive the worst abuse from mud and water, retain their lustre much longer when enameled than when they are painted. E. A. Carpenter, until recently superintendent of the finishing department of the Packard Motor Car Company, has charge of this department.

On October 15, Hayden Eames, of Cleveland, Ohio, terminated his management of the sales of the A. O. Smith Company, of Milwaukee. All orders and correspondence concerning the Smith factory products, therefore, should be sent to the makers.

The E. C. Walker Company, now located at New Albany, Ind., has sold a half interest in its business to E. C. Jacobson, of Louisville, Ky., and has erected a large factory building at 1913-1923 Logan street, that city, where the company will continue the present business of manufacturing the component parts of an up-to-date steam car. In addition to this, it will manufacture a pneumatic shock absorber which is applicable to the springs of any type of car, and a dust deflector which will be particularly desirable for gasoline automobiles.

Freeman Hinckley, for some time past assistant manager of the Pope Manufacturing Company's Boston branch, has just been appointed manager there, and Harry E. Marvel, who has been with the company for the past ten years as salesman, will succeed Mr. Hinckley as the new assistant manager.

The Fisher Automobile Company, of Indianapolis, has announced that it will handle several lines of unlicensed cars in 1906. It has had the agencies for the Pope-Toledo, Oldsmobile and Winton, and has now arranged to handle the Premier, Maxwell, Stoddard-Dayton, and the National in 1906. The National Motor Vehicle Company is now making several four and six-cylinder cars which will be placed in the Fisher stock as soon as completed. The Fisher company is one of the oldest and largest concerns in the city.

Following experiments made with a number of automobiles, the county commissioners of Marion county, Ind., will ask for an appropriation of $3,000 at the meeting of the Marion county council in January, for the purchase of a motor car. The hire of livery rigs by the commissioners is said to reach almost $2,000 yearly, and experiments with autos have demonstrated that the same work can be done in about half the time with them.

A three-story brick and stone building, 50 by 200 feet in size, has been leased in Springfield, Ohio, by the King Manufacturing and Garage Company, to be used as a manufactory of automobile tops, a garage and a supply depot. The company was recently incorporated with $20,000 capital, and took over the interest of the King Manufacturing Company. It is now entering the field as jobbers of auto accessories, and is opening a garage. It has excellent prospects, as Springfield is a city of 40,000 inhabitants and 100 cars are owned there, while there has been no garage up to the present time. The building leased by the new company is equipped with its own electric plant, and has an elevator large enough

to raise autos to the upper floors. Tourists through southern Ohio will now be able to secure any reasonable accommodations and repairs.

The name of the Gray Manufacturing Company, makers of mufflers, auto chimes and marine whistles, in Detroit, has been changed to the Gray-Hawley Manufacturing Company, George E. Hawley, formerly secretary of the Automobile Equipment Company, having purchased an active interest in the business. Larger quarters have been secured at 605 to 609 Fort street, W., Detroit.

W. J. Foss and Archie Hughes, who have for a number of years been connected with the Pope company, have closed contracts for the Pierce and Cadillac agencies in Philadelphia and extensive surrounding territory. It is understood that they will also handle a third line of cars. Both members of the firm are well known in Philadelphia, where they have been in business before.

The Buick Motor Car Company, which will handle the Buick exclusively in Kansas City, has moved into its recently completed garage at Fifteenth street and Virginia avenue, that city.

The American Coil Company, formerly located at West Somerville, Mass., has removed to Foxboro, Mass., where it will have increased facilities for taking care of orders for all goods pertaining to the ignition of gas and gasoline engines. This company has taken over the business of the Sherman Manufacturing Company, of Boston, Mass., manufacturers of electrical specialties.

The Upton Machine Company, of 17 State street, New York, with works at Beverly, Mass., will in future be known as the Beverly Manufacturing Co.

The Woods Motor Vehicle Company, of Chicago, has closed a ten-year lease on a new building on the west side of Cottage Grove avenue, south of Twenty-fifth street. The building has a frontage on Cottage Grove avenue of 113 feet and extends through to Calumet avenue.

Mills & Kennedy, 733 Boylston street, Boston, Mass., have secured the New England agency for the Welch car.

A. E. Morrison, who has been acting as manager of the Boston branch of the Peerless Motor Car Company, has organized a concern to be known as the Morrison-Tyler Motor Car Company, which will sell the Rainier gasoline cars throughout New England.

Inadvertently the name of the car fitted up for camping in the North Woods by Messrs. Fay and Young, as illustrated and described at length in the October 12 issue of THE AUTOMOBILE, was omitted from the article. Doubtless, however, every reader versed in automobile matters quickly recognized that it was a Thomas Flyer by the characteristic form of the upper part of the hood, which is one of the distinctive differences between the Thomas and most other American and foreign cars. The photograph was taken by Chickering, the well-known Boston photographer.

The Olds Motor works, of Lansing, Mich., has added a factory accounting department. with the object of ascertaining the relative cost of every article and the efficiency of the employes.

The Duryea Power Company, of Reading, Pa., is negotiating with the Pleasantville (N. J.) Board of Trade for a site upon which to build an automobile repair establishment and factory for marine engines. The site is near the junction of the new boulevard across the meadows to Atlantic City.

The latest addition to Philadephia's automobile colony is the headquarters of the Wayne Automobile Company, of Detroit, Mich., on the west side of Sixteenth street, above Chestnut.

The Rhode Island Motor Car Company, of 69-71 Broad street, Providence, Rhode Island, will handle the Thomas "Flyer" in that city for 1906, C. S. Henshaw having relinquished the agency.

The Reo management has effected arrangements with the Western Union and Postal Telegraph companies for a special telegraphic service direct from its factory at Lansing. The Western Union has already installed a full set of instruments.

B. G. Gilbough, of Chicago, manufacturer of ignition specialties, has removed from 175 Dearborn street, to Room 312, 36 La-Salle street.

The Atlas Automobile Company, which does the largest business in second-hand automobiles of any concern in Pennsylvania at its garage at 6235 Penn avenue, Pittsburg, is getting ready to build a two-story building that will have more than an acre of floor space.

The New York agency for the Mitchell car has been taken by the Motor Vehicle Repair and Storage Co., of 123 West 31st street. The company is ready to make immediate delivery of two-cylinder and four-cylinder models.

The Hyatt Roller Bearing Company, of Harrison, N. J., has completed a large addition to its plant, which is now being equipped with machinery to double the company's present productive capacity. Peter S. Steenstrup has been re-elected secretary and sales manager for the new year.

Halsey Brothers, of St. Louis, are to take charge of the interests of the H. H. Franklin Mfg. Co., in Chicago, until recently under the agency of Ralph Temple.

The St. Louis Auto-Car Company has leased the building at 1843 Broadway, New York City, which it will use as a garage.

At the annual meeting of the stockholders of the Logan Construction Co., of Chillicothe, O., the stockholders voted to increase the capital stock to $150,000 and to erect an addition to the factory and equip it with new machinery, so that nearly every part of the cars can be built in the works.

The Eureka gasoline separator is now manufactured by the Winkley Company, Box 243, Detroit, Mich., and not of Hartford, Conn. The Hartford address was erroneously given in referring to the separator in THE AUTOMOBILE of October 12.

The Willmarth & Marmon Co., of Grand Rapids, Mich., manufacturer of the drill grinders, will shortly remove to its new three-story factory at the corner of Canal and Leonard streets. that city, where the company will have twice its present factory capacity. In its new location it will be prepared to manufacture metal specialties under contract.

The Marion Motor Car Company, of Indianapolis, has its 1906 model on the road, and expects to have it ready for delivery on October 25. A specialty will be made of the touring model, it is announced, which will have the engine placed lengthwise and a sliding-gear transmission.

C. H. Taylor, W. E. Stone and U. G. Smith, of Cleveland, Ohio, have formed the Forest City Motor Car Company, to manufacture a light gasoline runabout on the order of a piano-box carriage. It is fitted with a small two-cycle engine, and the transmission is by means of ropes to the rear wheels. The promoters have a deal on with citizens of Massillon, Ohio, to locate a plant in that city to manufacture the machines. It is proposed to capitalize the company at $60,000, and the promoters want the citizens of Massillon to subscribe to half the stock. The deal is still pending.

Ernest S. Partridge, vice-president and general manager of the Decauville Automobile Company, sailed for Paris, Thursday, on the *Amerika*, to oversee personally the preparation of Decauville cars for the forthcoming shows. While in Paris he will also attend to the establishment of the Paris branch of the American company, which has been rendered necessary by the large number of cars owned by Americans who are touring through or living in Europe. Mr. Partridge will be accompanied by M. J. Rothschild, American representative of the firm of Audinot et Cie., auto body builders.

An auto repair shop has been opened in Newport, R. I., at 86-88 John street, by B. Morgan, who intends to carry on the manufacture of his patented single-piece inlet valves, as well as a general repair business.

The Tritt Electrical Manufacturing Company has removed from South Bend, Ind., to Union City, Ind., and is now established in the factory formerly occupied by the Union Automobile Company.

The W. L. Casaday Manufacturing Company, of South Bend, Ind., has about concluded to drop automobile manufacturing and devote its efforts to the development of stationary gasoline engines. Mr. Cleveand, until recently manager of the company, has gone to California with the intention of taking up his residence there.

The Buick Motor Company, of Chicago, has added a fully equipped machine shop to its establishment on Michigan avenue, to take care of repairs for Buick patrons. W. J. Mead, formerly well known to the bicycle trade, has been appointed manager of the concern, to take the place of H. E. Shiland, who has gone to the factory at Jackson to assume the duties of general sales manager.

The Adrian Steel Casting Company, of Adrian, Mich., which was incorporated last July, with a capital stock of $30,000, is making a specialty of the manufacture of light crucible steel castings, and has a productive capacity of three to four tons of castings per day. G. B. M. Seager is president of the company.

The Big Thunder Manufacturing Company, of Belvidere, Ill., has added to its plant a special department for the overhauling and repairing of automobiles.

The Tritt Electric Company, heretofore located at South Bend, Ind., has removed to Union City, Ind., where it is established in the building formerly occupied by the Union Automobile Company.

An arrangement has been effected between the G. & C. Dry Battery Manufacturing Company and the Royal Battery Company, of New York City, whereby the latter company will control the sole manufacturing rights to the "Greece" storage battery. The selling rights to the battery are controlled by the National Sales Corporation of New York.

Shipments of Franklin 1906 models were begun some weeks ago, and dealers who have received the first samples are repeating their orders. Those who have had an opportunity to judge from personal experience, state that the new model G, the shaft-driven, light car, is a great hill climber.

J. A. Dowling, formerly connected with Dowling & Maguire Company, of Boston, Mass., has secured the Pierce agency for the states of Maine, New Hampshire and Vermont.

THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, NOVEMBER 2, 1905—CHICAGO No. 18

A TOUR ON THE NATIONAL PIKE.

From Pittsburg to Wheeling and Cumberland in a Runabout.

BY CHEVALIER JACKSON.

OUR trip was made in a 7-horsepower runabout of popular make, whose seating capacity was increased to accommodate three persons by substituting a wide seat for the twin seats. This is somewhat of an imposition on a runabout, but it puts the weight in the right place. A small box on the floor close in front of the seat contained waterproofs and afforded a seat for the youthful member of the party. In the box under the seats were spare parts and tools, and on the rear was a circular basket with a spare tire and a waterproof bag of clothing. This overloading is bad practice and invites tire troubles, but careful running is an offset. The average running time was ten miles an hour. A little better than this can safely be made in a machine of longer wheelbase and larger wheels.

Trouble we did not have. The single 5 by 6 inch cylinder never missed a shot; we never took out a spark plug and never pumped a tire. There was not a cloud in the sky. The trip stands in memory as a rose without a thorn. The writer's bump of egotism is of small dimensions, yet he cannot think that it was *all* luck. At least he feels entitled to this view as consolation for the care he takes in cleaning, inspecting, testing and adjusting his machine, and in driving.

There is a difference between trouble and work. To my mind work is repairs done in advance at home before things happen; trouble is repairs on the road. Worn parts, bolts and nuts with damaged threads, wires with worn insulation, grease-soaked rotten tubing, and the like, that would have given out on the road, have frequently been removed beforehand. It is not claimed that all road troubles are avoidable; but with a well constructed modern machine, properly cared for, they should be a rare occurrence. One man encountered on this trip said he had been out three days and had only ridden for six hours. He had dust of four different colors on his clothing, gathered from as many different localities while groveling under his machine. When asked if he wiped and inspected his car after every trip, he said: "What's the use? Wiping won't prevent breakage, and a part will break ten minutes after it has passed inspection." Comment is superfluous. I had done more work on my machine than he had on his, but I did mine at home, with a pit and adequate tools, that made it almost a pleasure.

STRAIGHTAWAY UP HILL AND DOWN DALE ON THE NATIONAL ROAD.

THE ROAD.

In the early years of last century a bitter political issue was the National Highway, an undertaking of more serious proportions for our infant republic than is the Isthmian Canal today. The projected western terminus was St. Louis, but the road reached only to Richmond, Ind., when work was stopped.

The foundation of the "pike" was laid in most places with "one man" size stone matched together in a rough pavement on which was laid the smaller stones, while the top was finished with the smallest then available, a form of construction advo-

cated by Telford in England and bearing his name. In those days there were no steam stone crushers nor heavy steam rollers; all was hand work. In many places nothing now remains but the rounded, weathered foundation rock pavement, but nowhere has this washed away. If a strip twenty feet wide in the center were covered thinly with small crushed stone and kept properly crowned, the cost would be not more than $2,000 a mile, for stone is everywhere at hand, and the finest highway in the United States would be "resurrected." Many of the old cast iron mile-posts are still standing after half a century of weathering without paint.

The directness of the pike may be realized when it is noted that from Wheeling to Cumberland is 121 miles by road, while by railroad it is 218 miles. The undeviating course of the highway was impressed upon us while riding westward by night. For miles and miles the polar star hung persistently in the same relative position on our right. The engineers laid the road straight, and the stage companies put on push teams every ten miles to hurry the coaches along. "The longest way 'round is the shortest way home" was not the maxim of the government engineers; "straight as the crow flies" was theirs. Where following the compass and transit would make a grade of more than 10 per cent. they grudgingly deviated just enough to ease the grade to this pitch.

Unlike the railroads, the pike follows no watercourses with their many windings, except in one instance, east of Wheeling. Straight ahead it goes, up hill and down dale in an endless succession of coasts and low-gear climbs. Nor can the bottoms be rushed for a high-gear ascent, for near the bottom of each slope is a deep "water-breaker" (*alias* spring-breaker). No sooner are you speeded up after passing the "breaker" on the descent than you have to slacken for the lowermost breaker on the ascent. These water-breakers are a slovenly makeshift. If a road is allowed to flatten in the center, the water will run down hill lengthwise the road and, accumulating on the way, become a destructive torrent, tearing up the road surface. To prevent this accumulation, frequent diagonal ditches across the roadway sidetrack the water into the water tables at the sides. But sensible road making accomplishes the same end in a better way by keeping the road crowned highly in the middle so as to shed the water at once, thus never allowing it to even commence to run lengthwise of the road.

After the farmers have worked out their taxes by throwing sod and gummy mud from the water tables into the middle of the road, a heavy rain will make a stiff, tough mud that loads the chains of an automobile and makes even a 10 per cent. grade heavy enough. This is done, however, only in the cultivated sections; in the mountains no repairs of any kind are made. The slopes are washed to the rocky boulder foundation, and the sand collects deeply at the foot of the hill. This sandy, sometimes muddy, pocket is another element of risk in "rushing" for the ascent.

The road has fewer curves for its length than any other the writer has ever seen, notwithstanding the hills and mountains it traverses. From a high point four and five ascents can be seen straight ahead, and at one point, near Keyser's Ridge, an ascent twenty miles away can be seen—a thin white line rising straight up to the top of a ridge.

The construction of the National Highway was begun in 1812, and completed as far as Uniontown, Pa., in 1815. For half a century it was maintained in good condition, but for many years has been neglected or worse than neglected. In general it follows Braddock's road, laid out in the Wilderness by that brave English general's corps along the route of Nemacolin's path, an Indian trail. The Indian trail and Braddock's road meandered, however, whereas the National road was laid straight, almost due east and west, and crosses Braddock's road at several points. The older road is not traceable at the crossing places, but is easily found. The most readily located points are a hollowed trace through the woods and fields 200 yards north of the pike on Chalk Hill, along the road to Ohio Pyle, and at Washington Spring one and a quarter miles north of the pike at the summit of Laurel Ridge, six miles east of Uniontown.

GRAVE OF GENERAL BRADDOCK, NEAR FORT NECESSITY—UNDER PINE TREES, ENCLOSED BY FENCE.

Braddock's grave marks the road where it crosses the pike near Uniontown, for the English general was buried in the middle of the now abandoned road that bore his name. The passing of the army obliterated the traces of his burial, and prevented scalping by the savages. He was wounded at Braddock, near Pittsburg, but was carried about seventy miles on the retreat to this point before he died. About two miles east of the grave (eleven miles east of Uniontown) a large red brick house, with farm buildings close to the road, marks the point from which may be seen (300 yards south) traces of the earthworks of Fort Necessity, marked by wires stretched on stakes surrounding a flag pole. At first one is astonished that Washington should have located a fort down in a pocket where it could be fired into from the hills on all sides. His own opinion of it is expressed in the name.

The Trip.

We started out, not with the "get-there-or-blow-up" intention of breaking the record—and, incidentally, the springs; but, just for a saunter along the "old pike." When we saw a beautiful ferny, wooded spot we stopped, hunted ferns and, by way of contrast, rattlesnakes, and botanized a bit. When we came to an unusual vista of distant mountains the motor was stopped while we enjoyed the view and filled our foggy, grimy Pittsburg lungs with cool, clear, delicious mountain air. No, we did not fill our tires; they carried Pittsburg air away and brought it back. It is good enough for tires. We did not ride at night to roll up the mileage, but only when we wished to enjoy the charm of moonlight driving. Five in the morning was scheduled for the start; it was nine when the ladies were through primping. At least, the amateur chauffeur blamed it on the primping, though as a matter of fact he had worked up a fine circulation of blood while putting in the finishing touches on the "tuning up."

Passing Colonel Boquet's Block House, a relic of the French and Indian war, and the spot where once stood Fort Duquesne at the confluence of the Monongahela and Allegheny rivers where they form the Ohio, we sped over Point Bridge. A mile of rough streets preceded the beginning of the Noblestown road, smooth as a floor, over which we rolled eight miles to Carnegie, through Bridgeville (thirteen miles), Canonsburg (twenty-three miles), Washington, Pa. (thirty-two miles), where drugstore gasoline proved 78°, clean and highly efficient—after straining through a chamois skin that we always carry.

Washington County is one of the oil districts from which the best gasoline and cylinder oils are produced.

At Washington the first crematory built in America was visited. It was erected by Dr. LeMoyne, an early, earnest abolitionist, for the incineration of his own body, the ashes of which were strewn about the roots of some of his favorite shrubs. It is said of him that when the wealthy southerners stopped at Washington, while staging in the halcyon days of the "old pike," he used to urge the slaves to run away. This they usually refused to do, as only trusted, faithful slaves were taken on these trips. But many a heated argument by the stout-hearted, fearless old physician gave him a wide reputation as an abolitionist.

(To be continued.)

The explosive mixture in the cylinder of a gasoline motor does not ignite instantaneous throughout, but the flame, commencing at the sparking points, spreads more or less rapidly according to the inflammability of the gas, the gas most remote from the sparking points being the last to ignite.

Captain T. S. Baldwin's Dirigible Balloon.

By WALDON FAWCETT.

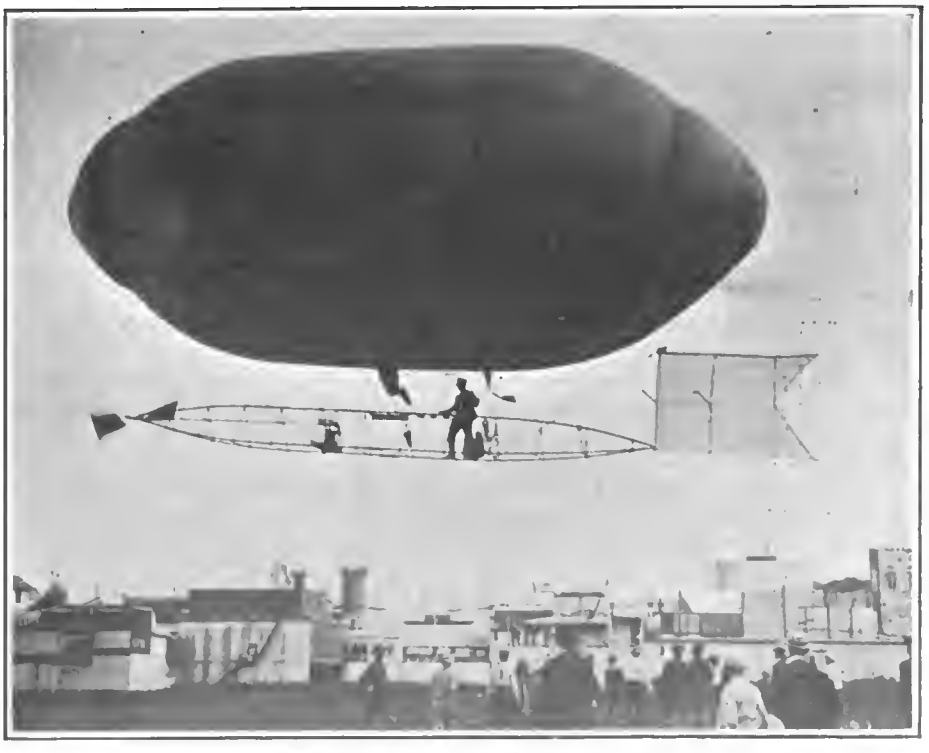
THE new dirigible balloon, or so-called "airship," recently completed by Captain Thomas Scott Baldwin, of California, is of especial interest in automobile circles because of certain improvements made in the gasoline engine that furnishes the power to drive it. In the airship there is far greater necessity for high engine efficiency combined with extreme light weight than in an automobile, since the whole weight of the power plant and the operator must be lifted by a gas bag not too large to be pushed through a current of air by the engine and steered by a light rudder.

The California inventor has expended more than $7,000 on motors for his various airships, it is said, and the newest motor as it stands to-day represents an outlay of more than $1,000, so his investigations in this field are worthy of more than passing notice. The new motor is a Curtiss bicycle engine built by G. H. Curtiss, of Hammondsport, N. Y. It is a four-cycle, two-cylinder, air-cooled, inclined motor with the cylinders set at an angle of 45 degrees and having a large outside flywheel in addition to the two flywheels enclosed by the crankcase. The motor weighs 75 pounds and is capable of making 3,000 revolutions per minute.

The improvements and distinctive features found in the new motor include auxiliary exhaust ports to assist in quickly releasing the burned gases and cooling the cylinders, and mechanical intake valves (an innovation in so small a motor) which insure a full charge at every suction stroke. Another improvement is a self-regulating oil feed for the cylinders. The supplemental flywheel is built up from sections instead of being cast solid, and in the whole construction of the engine a great advance has been made along the line of maximum strength with minimum weight. The gasoline tank has a capacity of two gallons, and sparking current is furnished by an Ever Ready dry battery of 16 amperes capacity.

The motor is capable of developing 7 1-2 horsepower as compared with the usual 5 horsepower. These figures appear low by comparison with the high-powered engines commonly used in automobiles, but Captain Baldwin declares that his motor is adequate for all present experimental purposes, since the present problem of aerial navigation by the gas bag method is how to control the movements of the balloon rather than how to get speed. He points out that under present conditions when an airship exceeds a certain rather modest speed it shows a tendency to become unmanageable. Until a way is found to control the direction of the craft he regards it as useless to seek the higher speeds.

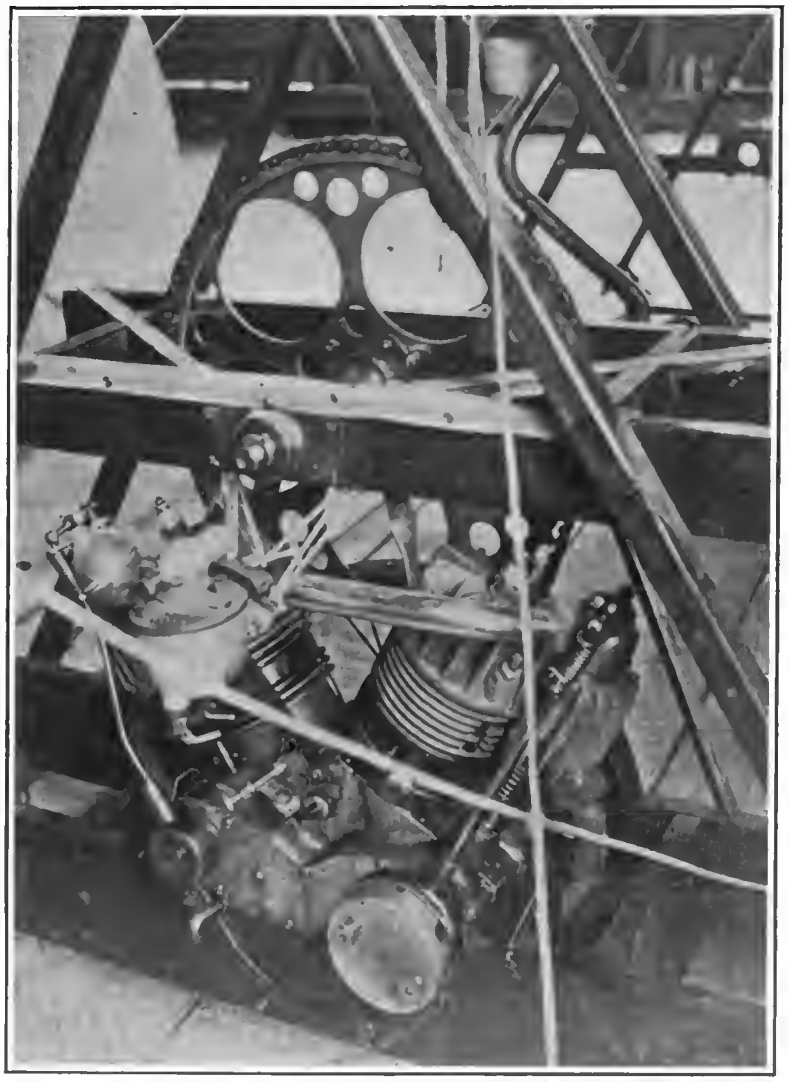
The motor is set transversely on the triangular truss frame suspended from the net that passes over the top of the gas bag. It is slightly forward of the center, as shown in one of the accompanying engravings. A propeller shaft transmits the power to a two-bladed propeller at the front end of the frame. The rear end of the shaft is journaled in a frame just above the engine cylinders and carries a large sprocket wheel connected by chain to a small sprocket on the engine shaft, the ratio of reduction being 8 to 1. The propeller shaft is of



CAPT. T. S. BALDWIN MAKING AN ASCENSION AT CONEY ISLAND IN HIS AIRSHIP.

bicycle tubing 1 1-8 inches in diameter and 14 gauge. The propeller has a throw of 12 feet and the blades, which consist of painted canvas stretched on a spruce frame, are 18 inches wide. The propeller can be turned 200 revolutions a minute, but is usually run at 180 to 190 revolutions.

The gas bag of this latest Baldwin airship is made of Japanese silk, oiled inside and outside, and has a capacity of 16,000 cubic feet of hydrogen gas, or nearly double the capacity of the lifting bag of any of the airships which he previously constructed.



CURTISS DOUBLE-CYLINDER 7-H.P. MOTOR, FITTED TO BALDWIN AIRSHIP.

The length of the bag is three times its diameter. The square mesh net is made of No. 72 cotton seine twine. The truss frame has undergone many transformations in the evolution of the Baldwin type of airships. The first "keels" were constructed of steel tubing and were more than 100 feet in length; the latest frame, however (the fourteenth, by the way, which Captain Baldwin has constructed) is less than 50 feet long and is made of Oregon spruce, a very light and marvelously tough wood.

This keel carries not only the motor and propeller, but also the rudder, which is 6 by 8 feet and is constructed of canvas stretched on a frame of spruce. Captain Baldwin, who is constantly making changes in all essential parts of his airship designs, is not yet satisfied with the form of rudder thus far employed, and predicts that it will ultimately be necessary to utilize inclined planes for steering purposes. In all his experimental work he compares the airship in its present state of transition to the development of the automobile. He points out that the automobile was originally limited in operation to comparatively level roads and that its hill-climbing powers were acquired gradually. He advances the opinion that the airship must pass through a corresponding evolution.

Reports of the extraordinary accident in which an aeronaut was blown to pieces at a height of 1,500 to 2,000 feet above the earth by dynamite at Greenville, O., on September 1 last, have led to the confusion of the unfortunate balloonist, Prof. John E. Baldwin, of Losantville, Ind., with Capt. Thomas Scott Baldwin, of San Francisco, builder of the only "airship" or dirigible balloon that made a successful trial flight at the Louisiana Purchase Exposition in St. Louis.

Professor Baldwin, who lost his life, was about forty-five years of age and had been making ascensions ever since he was twenty-three years old. Several years ago he conceived the idea of producing rain by sending up a large number of small balloons from different points and discharging dynamite simultaneously from them at a certain height. He gave exhibitions at country fair grounds, discharging fireworks when high in air, and it was during such an exhibition that twenty-five pounds of dynamite and other explosives were discharged prematurely, blowing himself and his balloon to fragments before a multitude of spectators at the Greenville fair grounds.

Captain Baldwin, of California, has followed the balloon business for fifteen years, having made more than 1,000 ascensions and parachute descents without receiving any injury. He took a special course in physics at Jesuit College, Santa Clara, Cal., to aid him in studying the problem of air navigation, and has spent large sums on his airships and the motors to drive them.—[Ed.]

AUTO A GOOSE TRAP.

Dr. Walter O. Gayler crossed the Pennsylvania ferry last night with two wild geese in his automobile, conscious that he had run a risk of being held up by rapacious game wardens in Jersey City for hunting on Sunday, but feeling secure in the knowledge that he could put up a good defense, as it was not himself but his automobile that killed the geese.

He was speeding at the top of the hill at Hilton, just after dark, tooting the horn, when he heard an answering honk and saw something rushing toward him through the air. "Duck!" he shouted to his companions; and they ducked as a flock of Canada geese swept over the machine. Jeder Goldmann, who was in the front seat, had his hat swept from his head by a wing and one of the women in the rear seat fainted. One of the four headlights of the machine was smashed.

When Mr. Goldmann went back to look for his hat he found two geese in the road. One was dead and the other dying. They were genuine wild geese, with black heads and white throats, and weighed about twelve pounds each.

A similar accident was narrowly avoided on Tuesday night by a flock of geese which were attracted by Aaron Whiteley's auto near Caldwell. In that case the geese got away after giving the colored driver a bad scare.—New York *Sun*.

If ever we broke down in an automobile on a country road, we would put a tent over the machine and prepare to live there the rest of our life before we would ask the enemy (the farmer) to bring us home.—Atchison *Globe*.

Automobiles are getting numerous; two or three pass through town every day.—Shelbyville (Ia.) *Call*.

The Automobile Laws of France.

Two Principal Laws Govern Operation Throughout the Country —Taxes and Special Regulations.

From Our Own Correspondent.

PARIS, Oct. 20.—Strange as it may appear. it is nevertheless a fact that the law in France concerning automobiles is simple and almost altogether devoid of legal complexities. The industry is too young and the laws of too recent origin for them yet to have been made incomprehensible by the efforts of the legal profession. At the time of Louis XIV, no one dreamed of mile-a-minute speeds, and consequently there are no royal restrictions. Moreover, the possibilities of automobilism were realized in France from the outset, and legislation has always been kind to the industry. This, together with the excellent roads bequeathed by the fighting age, is the secret of the rapid advance of a nation largely imbued with conservatism.

The law of 1851 and the decree of 1852. dealing with traffic regulation on roads, have an indirect bearing on the automohile question; but it was not until nearly fiftv years later that legislation first provided the automobile with a special place on the statute books. Automobile legislation applicable to the whole of France consists of only two decrees, dated March 10, 1899, and September 10, 1901, and two orders from the Minister of Public Works dated September 11. 1901, and December 12, 1901. These have been amplified and explained by ministerial circulars of different dates, giving instructions to the authorities as to the application of the existing laws. Automobiles are, of course, dealt with in the different financial laws, and apart from these national laws there are also a few prefectorial and municipal regulations of minor importance. Thus, excepting a few restrictions as to speed limits, there is absolute uniformity of legal treatment throughout the whole of France.

Mechanical Requirements of 1899 Law.

The law of March 10, 1899, as amended on September 10, 1901, consists of three sections dealing respectively with "Automobiles with or without fore-car bearing the motive power, with *bogie* or without, circulating alone"; "Automobiles drawing other vehicles"; and "General Dispositions." Section I, under the chapter "Measures of security," stipulates that tanks, pipes and every part intended to contain explosive or inflammable matter must be so constructed as not to allow the escape of anything likely to cause an explosion or a fire. All mechanical parts must be so arranged that they will not cause any danger. frighten horses or provoke a disagreeable odor. Steering and controlling appliances must be so grouped that the driver can use them while watching the road. Nothing must hide his view ahead, and the indicators he needs to consult must be placed within view and lighted at night. The vehicle must be so constructed as to answer readily to its steering gear, and to turn easily in a small circle. All steering gear must offer the necessary guarantee of strength. All automobiles weighing, when empty, more than 350 kilos (770 pounds), must be fitted with a reversing gear. Two distinct brake systems must be fitted each of which shall be capahle of cutting off the motive power and stopping the vehicle. At least one of these systems shall act directly on the wheels or on drums forming a part of the wheels, and shall be capable of blocking the wheels instantaneously. One of these systems, or a special system, must prevent all drifting backward of the car.

Compliance Must Be Verified.

The statement that an automobile comes up to these requirements is made by the *Service des Mines,* upon demand by the constructor or owner of the car. For French-built cars the builder must demand a verification of every type of automobile which he builds or will build; foreign cars will be examined before being put into service in France, at a spot to be designated by the owner of the car. All structural requirements being fulfilled, the *Service des Mines* will draw up a certificate, a copy of which will be given to the proprietor or constructor, as the case may be.

A builder will have the right to deliver to the public an unlimited number of automobiles built according to recognized models. He must give to each of these a number in the series to which it belongs, and he must also give to the purchaser a copy of the official certificate, and a declaration that the car delivered is entirely in conformity with this certificate. The declaration must state the maximum speed the car is capable of attaining on the level. Each automobile must carry in distinct letters:

(1) The name of the constructor, indication of the type and the order number in the series of this type;

(2) The name and residence of the proprietor.

If the automobile is capable of traveling on the level at more than thirty kilometers (18.6 miles) an hour, it must be provided with two regulation tags, to be placed well in view, one in front and one at the rear. The Minister of Public Works is charged with the details of these tags.

When the official of the *Service des Mines* refuses a certificate, appeal may be made to the Minister of Public Works.

National Registration.

The three articles of Chapter 2, entitled "Registration," declare that the proprietor of an automobile must. before using it on the public highways, make a declaration to the prefect of the department in which he lives. France is divided into eighty-six *départements,* each one being administered by a *prefect.* For the Paris district the Prefect of Police replaces the departmental prefect. A receipt will be given, on which will be stated the tag number to be carried. The proprietor's declaration must state the name and address of the owner, and be accompanied by a copy of the constructor's certificate. One registration is good for the whole of France.

Driving Certificate and Road Rules.

Chapter 3 consists of six articles dealing with driving and road regulations. No person may drive an automobile who does not hold a certificate of capacity delivered by the prefect of the department in which he lives, granted after favorable comment by the *Service des Mines.* A special driving certificate will be given for conductors of automobiles weighing less than 330 pounds.

To obtain a driving certificate the applicant must write to the prefect on stamped paper, prove his identity, and place of residence, and enclose two photographs. In the examination conducted by the engineer of the *Service des Mines* he must show his prudence, coolness, presence of mind, and in general display his ability to conduct a car safely on the public thoroughfares. Although a theoretical examination is not imposed, the candidate must show a sufficient mechanical knowledge to avoid accidents arising from the motor.

In the case of steam cars, the examination is much more searching, and the applicant must prove that he thoroughly understands the mechanical appliances employed.

Every chauffeur must be prepared to show his driving certificate and registration receipt whenever requested to do so.

The different mechanical organs of the motor, steering gear, brakes and like parts, must be kept constantly in good order, and every driver is bound to test his brakes from time to time in order that they may always work effectively. The driver of an automobile must constantly have his car under control. He must slacken speed or stop whenever his car might be the cause of an accident, cause disorder or interfere with free traffic.

Maximum Speed Limit 18.6 Miles.

The speed must be be reduced to that of a foot passenger in narrow or crowded passages, and in no case must the speed exceed 30 kilometers (18.6 miles) in the open country, or 20 kilometers (12.4 miles) in towns or villages, except in cases provided for by Article 31 (authorized road races). The approach of an automobile must be signaled by means of a horn, whenever necessary; every car must carry a

white and green light in front, and the driver must never leave his vehicle without taking necessary precautions to avoid accidents. After two summonses in one year, a driving certificate may be withdrawn by order of the prefect, after a hearing on behalf of the person interested, and on the advice of the *Service des Mines*.

Under Section II twelve articles deal with automobiles towing other vehicles. Permission must be obtained beforehand from the prefect of each department through which the automobile train is to be run, and the maximum speed is limited to 20 and 10 kilometers an hour.

Permits for Road Races.

Section III deals in seven articles with general dispositions. They declare that road races can be held only by special permission of the prefect of the department, on the advice of the chiefs of the road departments and with the consent of the mayors of the communes through which the road runs. When the road chosen runs through several departments, permission is granted only by the Minister of the Interior, after favorable comment by the officials mentioned above. In these cases the speed may exceed 30 kilometers an hour in open country, hut it must not exceed 20 kilometers in towns or villages.

The cost of guarding the road and other road expenses incidental to a race must be borne by the organizers.

Minute Description of Tags.

The Minister of Public Works, who is charged by the law of 1901 with the details regarding registration tags, issued an order the same year on this subject.

Two tags must be fixed hy the engineer of the *Service des Mines* on every automobile capable of traveling at more than 30 kilometers an hour. These numbers are formed by a group of Arabic figures followed by Roman capital letters, and must be in white on a black background. The letters refer to the mineralogical district in which the automobile is registered, and the figures to its position on the registers of this district.

The dimensions of the tags must he as follows:

	Front tag	Rear tag
Height of figures or letters	2.0 ins.	3.0 ins.
Uniform width of bar	.4 in.	.5 in.
Width of figure or letter	1.7 ins.	2.3 ins.
Space between figures or letters	1.1 ins.	1.3 ins.
Height of tag	3.0 ins.	4.7 ins.
Hyphen separating group of figures and letters:		
Width vertically	.4 in.	.5 in.
Width longitudinally	1.7 ins.	2.3 ins.
Space between hyphen and figures or letters	1.1 ins.	1.3 ins.

The tags must be hung longitudinally in the plane of the axle of the automobile. At night the rear tag must be illuminated by a lantern, or it may consist of transparent figures lighted from behind.

In the same year an order was issued by the Minister of Puhlic Works, regulating the size of tags for quadricycles, tricycles, and motorcycles. These are all smaller than for automobiles, and the motorcycle is exempt from an illuminated rear tag.

Tax Regulated by Size and Power.

The law of July, 1900, modifies that of April, 1898, relating to the taxation of automobiles, and fixes the amounts as follows:

Towns or Communes.	Amount Payable for each automobile: One or two seats.	More than two seats.	Per 1 horse-power or fraction thereof.
Paris	$10	$18	$1
Communes other than Paris:			
Population of more than 40,000	8	15	1
Population of 20,001 to 40,000	6	12	1
Population of 10,001 to 20,000	5	10	1
Population 10,000 and less	4	8	1

The tax for motorcycles is:

Machines with one seat, $2.40.

Machines with two seats, $4.80.

Machines with three seats, $7.20.

In addition to this, there is a slight road tax common to all vehicles.

Local Speed Regulations.

The foregoing laws are applicable to the whole of France. Local authorities, however, have a certain amount of power. Thus, the mayor of every town or community must take measures to assure safety on the roads of his own district, and in general they restrict the speed of automohiles passing through their townships, some adopting the maximum speed of 20 kilometers (12.4 miles) per hour, allowed by the law of 1901, and others limiting the speed to 12 kilometers (7.4 miles) an hour. The mayor's jurisdiction, however, extends only over his own township—a very limited area—and outside of this every automobile has the legal right to maintain a speed of 30 kilometers an hour. The mayor's power is still further restricted, for by the law of 1884, the prefect of the department is empowered to overrule any abuse on the part of a mayor. A mayor, for instance, who sought to impose a maximum speed of, say, four miles an hour, would doubtless find his decision overruled by his superior, the prefect.

Law Enforced with Common Sense.

The most curious feature of the French law is its glaring inconsistency with regard to speed regulations. Thus, while the law of 1901 clearly limits the speed of automobiles to 12 miles an hour in towns and 18 miles an hour in the open country, the same law makes full provision for the registration of automobiles capable of traveling at more than 18 miles an hour. There is not an automobilist in France, from President Loubet in his newly acquired touring car to the machine shop lad on his secondhand motorcycle, who does not transgress the law every time he takes a ride. No policeman or gendarme would dream of stopping either one or the other for traveling at 20, 30, 40, or even 50 miles an hour so long as there was no danger to other users of the road. In Paris even a speed of more than 30 miles an hour is often maintained in the broad avenues without interference from the police.

The attitude adopted by the officers of the law is exemplified by the instructions given recently by M. Lépine, chief of the Paris police, to his subordinates:

"You must, above all, be guided more by the circumstances of time and place than by the letter of the law. The automobile driven on the boulevards of the Capital at certain busy hours of the day at a speed of 20 kilometers an hour, although allowed by the law of 1899, would be an obstruction to the general circulation and a danger to public security."

Mufflers, Searchlights and Horns.

The latest modification of automobile regulations is an order from the Prefect of Police, who exercises the powers of prefect of a department for the Department of the Seine—the most populous automobile district, as it includes Paris and the surrounding country. This order, dated 1905, stipulates that every automobile traveling within the district governed by the Prefect of Police must be fitted with an effective muffler and must not use a blinding searchlight. Chauffeurs are also forbidden to use their horns or any other warning signal abusively, that is to say, without absolute necessity.

In the Paris district all bicycle policemen now receive automobile instruction. As the regulation of automobile traffic is almost entirely left to the cyclist corps, this measure tends largely towards equitable treatment.

A prison sentence was recently imposed by the French courts, when the case of Elliott Fitch Shepard, who in his motor car ran down and killed a girl at St. Ouen last April, was brought to trial. The young man was sentenced to three months' imprisonment and fined $120; the Court also directed him to pay $4,000 as damages to the parents of the girl. Mr. Shepard is a son of the late Col. Elliott F. Shepard, of New York, and a grandson of the late W. H. Vanderbilt. The case will probably be appealed.

In no country has the coming of the automobile made greater changes than in Ireland. For one thing, it has now become the fashion with those who are entrusted with high official positions in the country to travel throughout its length and breadth and see for themselves the land whose destinies they are helping to rule for the time being. Lord Dudley has been all over Ireland, possibly not leaving a county unvisited. He has the distinction of being the first Irish viceroy for many years who has realized that the sphere of his work lay in Ireland.—London *Truth*.

Local Road Directions at Albany, N. Y.

By ROBERT BRUCE.

TOURISTS going from the capital city of New York State to points on the east side of the Hudson river (whether bound to Poughkeepsie and New York, or to points in western Massachusetts), must make the acquaintance, first of all, of the highway bridge across the river about 1-4 mile below the center of the lower business district of Albany. This unpretentious toll-bridge (15 cents toll for automobiles) is reached on either side only over wretched stone pavements, which is all right for the enormous trucking that is done over the adjacent thoroughfares, but it is tough on automobiles. As there is no possible way to avoid this district, the best thing to be done is to make the travel through it as short, in time and distance, as possible.

The accompanying diagram gives at a glance the main thoroughfares for automobile travel through the city of Albany. A closer view will show a sort of system to the whole which may not appear at first sight. Madison avenue is asphalted from near the river front up through the business and residence districts, past Washington Park and out to its intersection with Western avenue; this is undoubtedly the best thoroughfare across the entire city. It has the disadvantage, however, of being somewhat to one side, considering State street, up past the capitol, as the one main thoroughfare.

One entering Albany over the highway bridge already mentioned, whether from Hudson river or New England points, and simply going through the city, can save some bad riding by continuing directly ahead from the bridge into South Ferry street, keeping same to Green street. If he will turn right on Green street, and go ahead to the corner of Madison avenue, turning left up that avenue, he has a good thoroughfare all the way up-town. One bound to points down the Susquehanna Valley, Cooperstown, Oneonta, Binghamton, and Richfield Springs, with no desire to go around the Capitol building, or make other stops, Madison avenue will be found a direct line into the two optional routes to these and various other places. Delaware avenue, which branches left just before Washington Park, is somewhat the longer route into this part of the state, but it is generally preferred for automobiles. Straight out Madison avenue, past Washington Park, and into Western avenue, is a somewhat shorter route, but it does not have so much new state road.

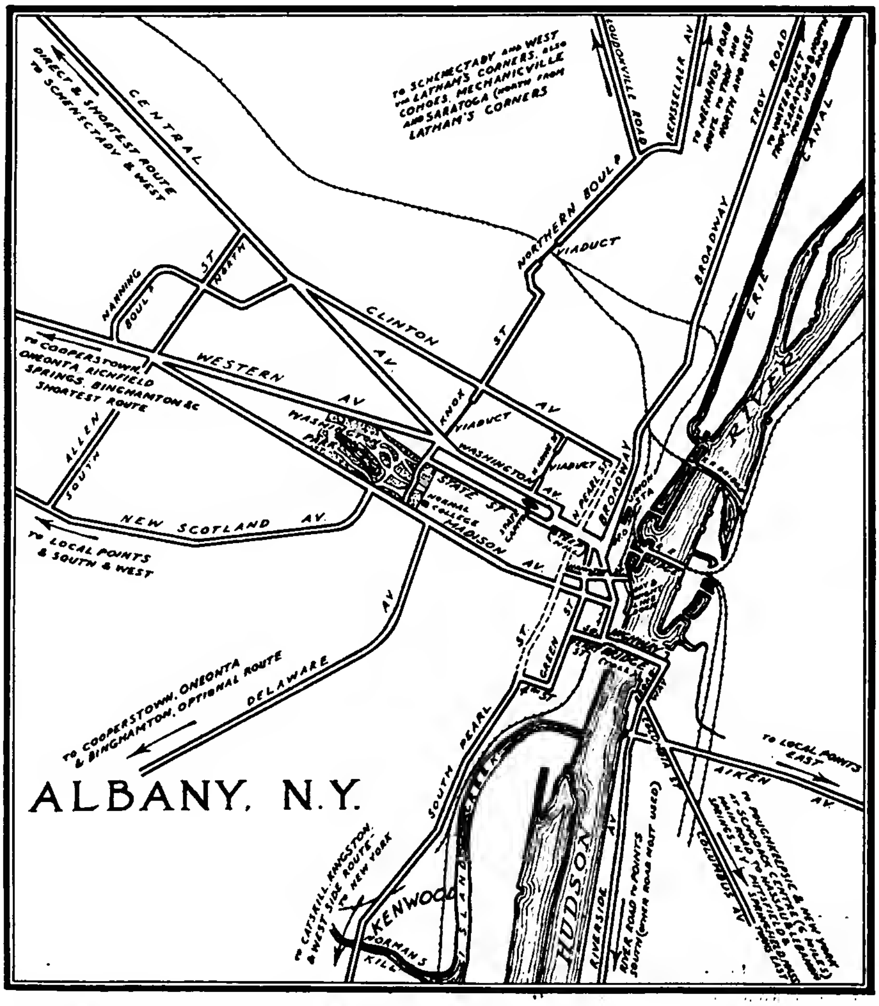
From the same highway bridge to Schenectady and the west, there are two widely different local routes, branching apart a short distance beyond the state capitol. To reach either one of these, go ahead from the highway bridge into Broadway, which keep to intersection of State street, a point easily marked, as the Post-Office is at the right just at the corner, while the state capitol looms up straight ahead.

Bear left up State street hill—fully as steep as it looks—but the way directly ahead is cut off by the capitol building and grounds; bear right around the capitol into Washington avenue. This thoroughfare leads directly into Central avenue, which is the direct and shortest route to Schenectady. However, this route is at present out of commission on account of new construction, so a less direct and slightly longer route via the Northern Boulevard and Lathams' Corners is preferred.

Wishing to make this exit, keep a lookout for Knox street, which is a right turn from Washington avenue, just beyond Bleecker Hall, one of Albany's prominent theatres. Knox street is rather inconspicuous at this point, and needs to be watched for, but it is the best gateway into the Northern Boulevard. Turning right down Knox street, the motorist crosses at once over a viaduct, spanning a low part of the city, and shortly afterward crosses another and larger viaduct over the depressed tracks of the New York Central railroad. Shortly beyond this second viaduct the Loudenville road branches left and leads to Latham's Corners, where a left bend with the Troy-Schenectady trolleys will give the direct road into Schenectady.

Entering Albany over the highway bridge, bound for Troy and the North generally, keep Broadway past the Post-Office and the Union Station, out under the elevated tracks of the N. Y. Central, and over what is called locally the "Stone Road" to Troy. The trolleys show the way through Watervliet (West Troy) to Congress street, Troy. This is the principal route to the North, the line to Saratoga and Lake George continuing north from Troy to Waterford, Mechanicville, Ballston and Saratoga.

However, one leaving Albany from a point convenient to the Northern Boulevard may take that thoroughfare to the Loudenville Road, thence to Latham's Corners; here, instead of bearing left for Schenectady, keep straight ahead across the Troy-Schenectady road, on the thoroughfare to Cohoes and Mechanicville, making an optional route to Saratoga. And more, Rensselaer avenue, whose connection with the Northern Boulevard is shown on the diagram, is an optional route through to Troy or to Schenectady or the north, connecting with the Menand's Road. However, this would probably not be used much by through travel.



MAP SHOWING VARIOUS AUTOMOBILE TOURING ROUTES THROUGH ALBANY, N. Y.

Perhaps the least known among the main roads leading out of Albany is the one which begins the west side route along the Hudson toward Catskill and Kingston. Since the line between Albany and Kingston on the west side is not so good as that between Poughkeepsie and Albany on the east side, this upper west side route has not received as yet the attention its importance deserves. Nevertheless, the writer had the opportunity a short time ago of making a trip down this line for about 20 miles, and found a route out of Albany to Kenwood and across the Normanskill (a tributary of the Hudson) much better than any other exit from the city. Below Kenwood several miles of new state road are almost completed, and the few miles already in use give as fine riding as can be found anywhere.

This route must in the near future be considered by the tourist, especially for runs from Albany, Troy and Schenectady, into the Catskills. The best exit, reckoned from State street and Broadway, is Green street, south to Fourth street; here, where the way ahead is seen to be cut off by the railroad yards, turn right and go ahead two blocks to South Pearl street. The latter is also a complete thoroughfare from State street, but it is not so good as Green street, being a business thoroughfare and badly paved. Leaving Fourth street for South Pearl street, turn left and follow car tracks to their end at the village of Kenwood on the north side of the Normanskill. Crossing that stream and then bearing to the left gives the beginning of the west side route to Catskill, Kingston, Newburg and New York. It would be interesting to know if anyone has made this run throughout.

The diagram also shows how connections may be made between the various routes into and out of Albany, with the least trouble. For example, one inbound from Susquehanna Valley points by Delaware avenue and wishing to reach the Northern Boulevard, has only to turn left on Madison avenue to Washington Park. Directly across the edge of this park there is a road which runs into Knox street, the beginning of the Northern Boulevard. Conversely, one entering Albany from Schenectady via Central avenue, and desiring to take the Delaware avenue line toward Susquehanna Valley points, or South Pearl street to Catskill or Kingston, will keep down Central avenue to Knox street, turning right on Knox street, crossing the lower edge of Washington Park into Madison avenue.

A left turn on Madison avenue will bring the tourist shortly to the beginning of Delaware avenue, or if bound to west side river points, keep Madison avenue to intersection of South Pearl street, and directly out that street. By the same means one en route from Schenectady or west to Hudson, Poughkeepsie and New York can save some poor riding by using this same way into Madison avenue, keeping the latter across the residence and business part of the city to Broadway, to the highway bridge.

To one bound from Albany, or north or west thereof, to Hudson, Poughkeepsie and south, Rensselaer (formerly East Albany) is likely to be a puzzle. At the eastern exit to the bridge there are signs pointing "To Poughkeepsie," and giving the distance, but the metal arm on the post is a suggestion all too brief for practical use. One's first inclination is to follow the Albany-Hudson trolleys out, but this would quickly bring the driver to grief. In fact, there are two routes down the river, Broadway (Rensselaer) being the beginning of both. The line most used is naturally the Old Albany Post Road, of which, however, there is no suggestion until the tourist is well out of Rensselaer.

To reach the Post Road, take Broadway south from the bridge exit to intersection with Columbia street. Bear left out Columbia street, across railroad tracks into Columbus avenue, which leads directly into the Post Road, the route of which is via Schodack Center, Kinderhook. At Schodack Center a prominent road turns left for Nassau and western New England points. Schodack Center, nothing in itself, is thus seen to be the dividing line for two very important trunk line highways.

One desirous of taking the river road to Castleton and points below, may do so, though it is usually a disappointing run. This route is Broadway direct to Riverside avenue; two or three miles out it crosses the railroad tracks, and runs along a short distance from both river and railroad to Castleton. Below Castleton it has connections with Kinderhook and the Albany Post Road to Hudson and below. This line is in bad condition, especially in wet weather, and for all ordinary purposes the Columbia street Columbus avenue Post Road line is to be preferred.

W. D. WISE, OF LOS ANGELES, PIONEER AUTOMOBILIST OF SOUTHERN CALIFORNIA.

WOLF HUNT WITH AUTOS.

Special Correspondence.

DELAVAN, WIS., Oct. 28.—A round-up of a pack of sheep-killing. man-devouring wolves with automobiles is likely to occur in this section of the Badger State shortly. This and adjoining counties adjacent to the Kettle range of mountains are infested with large timber wolves that have been killing and carrying off farm animals by the wholesale. They have not hesitated to attack men and women driving from the markets of the various towns. One pack broke into the barnyard of Farmer Campbell, drove his sheep into the woods and killed fifteen head.

These depredations have led to plans for a wolf drive that will eclipse anything that has ever been heard of. Within this district are some of the speediest touring cars and runabouts in the state. They include the Oconomowoc, Lake Geneva and Delavan Lake cars, and their owners are sure to turn out for this great sporting event. There will be a blowing of horns, grinding of gears, and an array of polished brass in which the blood-thirsty animals may see themselves scared to death.

Arrangements are now going forward; thoroughbred Russian wolf hounds have been engaged, and the hunt is expected to take place during the first week of November.

California Auto Pioneer.

One of the pioneer automobilists of southern California, W. D. Wise, of Los Angeles, is shown with his car in the accompanying engraving; the scene is typical of the country. Mr. Wise commenced his automobiling in a little steam runabout which he purchased in 1900—one of the first two cars brought to the Pacific Coast. This machine he used until the spring of 1905, when he purchased a big gasoline car—a long step. Speaking of the contrast between the new and the old, Mr. Wise said: "When I got into the little 'teakettle' I was the proudest man in Los Angeles; but I had to pump air, heat my torch in the kitchen stove or else build a bonfire, fill the boiler through a hose, get up steam, drain off water from the lubricator, fill up with oil and test the water glass. And all this to develop one-tenth of the power of the car that I now have, and on which I have only to touch a switch, turn a crank and roll away at speed."

Practical Experiences with Air-Cooled Cars.

By HARRY B. HAINES.

IN automobiling, theory and practice are two very different things, and it is not always a profitable investment to force an automobile to run when it is acting badly, just because everything connected with it happens to conform with the established theory of the so-called experts. It is safe to say that although the general symptoms of auto disease may be somewhat alike, no two machines will act exactly the same from the same cause. There is of necessity bound to be some variation in their performance due to difference in the wear on parts, the load carried, the condition of valves, piston rings and cylinders and the compression resulting therefrom.

It is my idea, then, to give a few personal road experiences with various air-cooled machines, covering three years' time and upwards of 25,000 miles of varying road conditions.

My first purchase in the air-cooled type was a single-cylinder car rated at 8-horsepower and fitted with a motor of the horizontal type which was tucked away under the body. The cooling operation was accomplished by means of a cylinder studded with radiating pins and a belt-driven fan.

When the machine reached me from the factory I was not entirely a novice in automobiling, having had considerable experience with two water-cooled runabouts that I had previously owned. I soon found, however, that the handling and operation of an air-cooled engine was materially different from that of the water-cooled, and that the same treatment did not always produce the same result.

Fool-Proof Control.

My machine was fitted with a sun and planet transmission, giving two speeds forward and reverse and a motor control giving an advanced spark and more gasoline by the forward movement of a single lever. I soon discovered that although this style was, to a great extent, "fool proof," it was not entirely satisfactory, and I devised a method of getting greater motor efficiency on hills and in traveling over rough country by combining the double control with a single one of my own design, which also, to a great extent, obviated the use of the low gear on many grades where it had formerly been necessary to change gears.

The factory idea of coupling the spark and gas on one lever worked very well on ordinary roads, but in heavy sand and mud it was in a way unsatisfactory, as it necessitated an unduly, and at times dangerously, high rate of speed, or the use of the low-speed gears. I devised a throttle that was worked by a foot lever placed alongside of the reverse pedal and operating laterally. This lever was so connected that it opened the butterfly valve controlling the gasoline supply, independently of the spark, and by means of it the spark could be retarded in going over heavy roads, and the valve supplying the gas opened widely, giving increased power. The lever was closed by a strong spring, and would remain open only when held so by the foot. The result was most satisfactory, and the heavy pounding of the engine that had previously been present when the single-cylinder motor had to labor up hills or over bad ground was pleasantly missing, as was the overheating that this hard work invariably occasioned.

Kept Fan-Belt Tight.

My next difficulty in overheating of the motor was caused by the fact that I found it hard to keep tight the belt driving the fan. As is known, on this type of car the forced draught for the engine is supplied by a fan driven by a belt from the time shaft. In order to get sufficient speed the pulley on the fan is made very small, and there is considerable difficulty in keeping the belt from slipping despite the fact that in this early type an idler was supplied for that purpose. I tried all sorts of belt dressings without result, and finally hit upon the plan of putting a leather face on the fan pulley. I had this done, and the annoyance of a loose fan belt with its overheated motor resulting, disappeared.

In this type of car the manufacturers furnished no protection for the engine from mud and water except two small mud splashers hung from the front axles and dangling alongside of each front wheel. These would to a certain extent keep the water off the engine, but when the roads were good and wet and "mud puddles" were met with often, the water would splash up on the air-suction pipe—this was located alongside the motor with the idea that the heat of the engine would facilitate the carburation of the gasoline. The water so splashed would be sucked down through the inlet valve along with the gasoline and air, and the result would be an imperfect mixture and a loss of power that at times would result in the engine being stalled.

Water would also splash up on the spark plug and short circuit it, and in very wet weather all sorts of trouble was experienced as a result of this. The manufacturers make a spark plug cover of hard rubber to protect the plug, but this did not prove a success. It retained so much heat around the plug that the porcelain was often cracked and the plug put out of business, and finally when the motor would become good and warm the rubber would melt and burn, causing a very unpleasant smell.

Protection for the Motor.

I had two different guards devised to go under the machine, both of them being made of leather. The first one I had closed on the rear end, and I found that this resulted in causing the motor to overheat. I then had the cover cut in half and put close up around the motor. This also caused excessive overheating, and we then devised a solid pan of galvanized iron, extending from the front axle, to which it was attached, back of the engine and transmission. This was supported at six points and was left open front and rear. The result was most satisfactory, as it did not in any way interfere with the cooling of the engine, and protected it completely from mud and dust. It was possible to keep the machinery clean and at the same time the oil and dirt accumulating in the drip pan could be removed by flushing the pan with a hose. A drip hole had also been provided in the bottom through which most of the waste oil escaped.

Previous to putting this protector on, the radiating pins on the under side of the cylinder had often become filled with mud, grease and dirt particles, and this prevented the proper radiation of heat from the motor. I had been in the habit of cleaning the cylinder about every two or three weeks, the frequency of this operation depending entirely on the road conditions. I found that the easiest and best method of getting the dirt out was to turn a steam jet on the cylinder. I had a friend who owned a steam carriage, and I purchased some steam hose, one end of which had a coupling that could be fitted to the blow-off valve under his boiler. The other end had a small nozzle. He would get up a good steam pressure on his machine, and would then blow off the boiler while I directed the steam on the cooling pins of the under side of the cylinder. This carried the dirt, dust and grease away in good shape, and the engine was soon as clean as the day it left the factory. After letting the water dry on the cylinder, I would take an ordinary oil squirt gun and, filling it with kerosene several times, would squirt that fluid on the cylinder and pins to prevent them from rusting.

Method of Scouring Cylinder.

I found that another good method of cleaning the cylinder when steam was not available was to boil about four pounds of sal soda in a pail of water, and when the stuff was at boiling heat douse the cylinder with it, using a squirt gun to get at the under side. The importance of keeping the radiating pins and cylinder on an air-cooled engine free from dirt and grease should not be underestimated, for it is only when they are clean that the engine enjoys its full powers of cooling. Overheating is eventually fatal to the life of the engine, and the manufacturers of air-cooled machines have taken every precaution in designing their cars to make them "fool-proof," and either render impossible—or, at the very least, difficult—the practices that in ordinary motor usage result in overheating. It is accordingly up to the user of a machine to meet them halfway.

The lubricating oil plays a great and important part in the proper running of the engine, and to a great extent the sort of

oil used and the quantity used will result in either good service or a loss of a great deal of power. Generally speaking, it is advisable to use the sort of gas engine oil recommended by the manufacturer, and it is highly important to see to it that the oil gets into the cylinder as it is intended to do. From twenty to forty drops a minute, according to the amount of work being done and the speed of the car, should be supplied.

In this single-cylinder type of machine the adjustment of the fan was often a matter requiring some attention. It was necessary to hold down on the idler pulley with a screw-driver while the set nut was fastened, and then if the fan was not at the same time held well back against its bearing, the fan blades would strike on the rods near it. I failed to properly fasten this set nut on one occasion, with the result that the fan crept forward and the blades struck one of the rods near it with terrific force, shearing off every blade.

I was ten miles from home, and in a rather hilly country, and for a time I was at a loss as to what to do. There was no chance of getting another fan, so I decided to take a chance and run home without one. I opened up the oiler so that it fed from 70 to 90 drops a minute, and took up the front floor boards in order to give the cylinder the advantage of all possible radiation. The day was a rather warm one, and the car went along all right until it became necessary to take a hill on the low speed, when the engine heated up considerably. The increased oil supply sooted up the spark plug, and caused a skipping of spark that made matters worse.

I was finally obliged to stop the motor to allow it to cool off, as the piston threatened to stick. In about half an hour I was able to start again, having cleaned the spark plug, and managed to get home all right. The engine did not overheat to any great extent as long as I was able to get along on the high speed.

Adjusting the Carbureter.

I learned from experience that carbureter adjustment is also another factor to either cause or obviate overheating. Too rich a mixture will cause the engine to behave badly and overheat, and I have found that it is a good method with an air-cooled car to vary the mixture from time to time to suit the atmospheric and other conditions under which the engine is working. I have followed the plan of retarding the spark and gas lever to their limit and then working the carbureter adjustment until the engine will just turn over and keep running without missing explosions. The engine when the spark is advanced and the gas opened up will then generally develop its best power. The condition of the valves and piston rings will, of course, affect the power developed also, and nothing will cause overheating quicker than an improperly timed spark, or valves that do not operate properly.

In this type of air-cooled car of which I write, a single coil without a vibrator was used, the contact points being located in an aluminum igniter box mounted rotatably on the forward valve-shaft bearing. The cam which causes the make and break of the electric circuit consisted of grooves or notches in a hardened steel collar on the valve shaft within the igniter box. A stiff steel spring on which the upper platinum tipped spark point was located dropped into this notch on the steel collar and made and broke the circuit. These spark points were adjusted very carefully, and when properly set were a sixteenth of an inch apart—this measurement being attained with the points out of contact. If the tension on this spring was not maintained properly a skipping spark resulted, and I have experienced considerable trouble from that source.

On one occasion this spring temporarily put the car out of commission, and had all the experts in this vicinity puzzled.

The machine was skipping spark, and despite all the adjustments of the spark points, cleaning of the plug and trying new batteries and coil, the engine refused to spark properly. Even the valve adjustments were looked over without result, and finally it was discovered that this spring had cracked at one of the holes bored to admit the spark point, and when the engine was turned over and the plug tested outside of the cylinder it seemed to operate all right. When the engine was speeded up, however, the spring did not have sufficient tension to make the proper contacts, and the skipping of the spark resulted. Putting a new spring in place remedied this difficulty.

Locating an Unusual Noise.

In this single-cylinder type of car some trouble was experienced because of the fact that lock washers were not provided on some of the very important bolts. On one occasion the motor developed a sudden and entirely new knock and seemed to be having troubles of its own that every moment threatened its entire stoppage. I was climbing a hill at the time, and upon getting to the top of the grade I got out to investigate.

Everything was in apparently good condition, the motor running slowly with the gas cut down and the spark retarded and exploding regularly, but upon starting off again and throwing in the gears the same knock developed. I again got out and decided to ascertain the cause of the trouble. Taking up the floor boards, I turned the motor over by hand, and was surprised to see the entire front end of the cylinder moving up and down at least an eighth of an inch under the bolt that held it on the angle iron frame in front. The knocking noise was at once explained.

It was necessary to jack up the motor from underneath to take the weight off the bolt before it could be tightened. I drew up the bolt tightly, and ran home without any further difficulty. I then had the bolt taken out and a lock washer put between it and the motor frame, which held fairly well. We then secured a piece of iron and had it cut out to the shape of the head of the bolt. A small flange on one side was bored out and a hole drilled in the angle iron frame and tapped out. This square iron was then placed over the bolt and the end of it was securely fastened to the iron frame of the machine and securely locked, the engine bolt preventing it absolutely from turning and obviating the danger of having the front end of the engine work loose and drop down, which would prove both an unpleasant and very expensive experience.

Later in the season I experienced similar trouble with the two bolts supporting the rear end of the engine. These would work loose, and a knock would result. The use of properly designed lock washers overcame this difficulty.

(To be continued.)

English railroads are vigorously attacking the problem of short distance passenger traffic by means of independent motor cars. One road is using a gasoline car, the invention of an American, in which the motor and other machinery is placed beneath the floor, leaving the entire floor space clear. A number of roads have rebuilt old tank locomotives into car bodies, adding a rear truck. The Northeastern Railway is experimenting with a motor car in which a gasoline engine of 80-horsepower, with four water-cooled cylinders, drives a dynamo, the current from the generator being led to two motors geared to the axles. The gasoline motor is horizontal and is placed under the floor. Duplicate operating levers are placed at each end of the car, so that the motor can be controlled from either end. The maximum speed is thirty-five miles an hour and speed variations are effected by means of controllers in the electric system. The same railroad company is running a motor sight-seeing brake, omnibuses and light and heavy automobile freight wagons. Various motor systems are being tried and records carefully kept; in time much valuable data will be available and will be of great advantage when extending the motor service and purchasing new vehicles. Two steam buses have been giving good service since April, 1904; and three gasoline buses, having four-cylinder motors of 24 horsepower, are also in service. An express wagon has a two-cylinder gasoline engine, and one of the heavy freight trucks is driven by steam.

The Disappointed Fly.

A horsefly lit on an auto's back.
Looking for meat and gore;
Then crawled onto the cooler,
Where his feet got hot and sore.

Then down he ran to the carbureter,
Wiser, but with appetite keen;
But all the poor old horsefly got
Was a whiff of gasoline.

—Disowned.

Seventh Annual Gaillon Hill Climb.

From Our Own Correspondent.

PARIS, Oct. 16.—A strong wind was blowing over this part of old Normandy yesterday when the seventh annual Gaillon hill climbing contest was commenced. As in the sister event, a fortnight ago at Chateau-Thiérry, all classes were provided for, the first to start being the heavy vehicles. Owing to their diversity no classification is possible. Every one of the trucks and 'buses, however, climbed the 10 per cent. kilometer hill with an ease and regularity that cause one to wonder at the slowness with which these vehicles are being adopted in commercial circles. The Dufour truck with a load of between five and six tons, climbed the hill in 12:54 4-5. A Brillie truck went up with a load of five tons in 8:38 3-5; an Ariès carrying three tons went up at a very regular speed in 10:48 4-5, and a light Automoto in 4:42 4-5.

The two omnibuses—a Serpollet steamer and a Brillié gasoline—had a tremendous success, and ought by now to have convinced even a Paris omnibus company of their suitability for city work. The Brillie 'bus, instead of the thirty passengers which it officially holds, had more than forty, but this did not prevent M. Brillie taking his vehicle up the steep grade in 11:-11 4-5. The Serpollet, with passengers on every part of the vehicle to which it was possible for a human body to cling, made the record time of 6:04 2-5 over the kilometer with flying start.

The touring motorcycle class with a limit of one liter cylinder capacity, resulted in a victory for Anzani on an Alcyon machine in the record time for the flying kilometer of :53 4-5. Constant, on a Quenton, came second with :59 1-5, Rivierre, on a Contat tri-car registered 1:22 2-5.

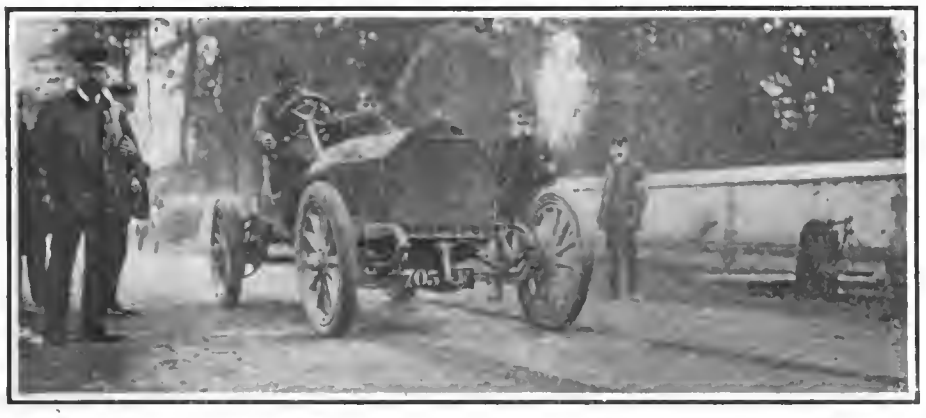
Six classes, arranged according to selling price, were provided for touring cars. In the $800 class a Bailleau was first in 3:10 4-5, a Fouillaron second in 3:15, and an Oldsmobile a good third in 3:15 2-5, or an average speed of 11.4 miles an hour on the 10 per cent. grade. The American car had been entered for the race at the very last moment by the new Paris agent within a few minutes after signing the contract with the Oldsmobile company.

In the $800 to $1,600 class an average speed of 29.8 miles an hour was attained by a Serpollet steamer, the time being 1:15 for the flying kilometer against 2:13 1-5, the old record. A Serpollet also won in the $1,600 to $2,400 class, in 1:09 2-5, leaving the previous record unbroken. The $2,400 to $3,000 class was won by Baras on a Darracq in 1:30, leaving the previous record untouched. In the $3.000 to $3,600 class the Fiat lowered the previous record of 1:17 1-5 to 1:09 1-5, an average of 32.8 miles an hour. The fastest time of the day in the tourist classes was made in the $3,600 to $5,000 class by a Berliet in :44 1-5, lowering last year's record by five seconds. A Radia car was second in 1:07 3-5.

When the speed classes came to be run off in the afternoon the strong wind was accompanied by a fine penetrating rain that made the course slightly slippery and transformed the steep banks on which were crowded thousands of spectators into a most treacherous standing ground. No records were broken but keen racing was witnessed nevertheless.

Baron Pierre de Caters, on his new Mercedes car, obtained the victories of the day by covering the kilometer with flying start in :31, being two seconds short of the record established by Barnes and Rigolly. Villemain, on a Bayard-Clément, was second in :32 and Clifford-Earp, on a 90-horsepower Napier, finished his short stay in France by dropping down to third position with :32 4-5. The three Mercedes cars driven by Teste, Stead and Faure took respectively fourth, fifth and sixth places. The Mercedes driven by Teste belonged to Chevalier Florio, who at the last moment was unable to attend the meeting and got the Panhard driver to replace him.

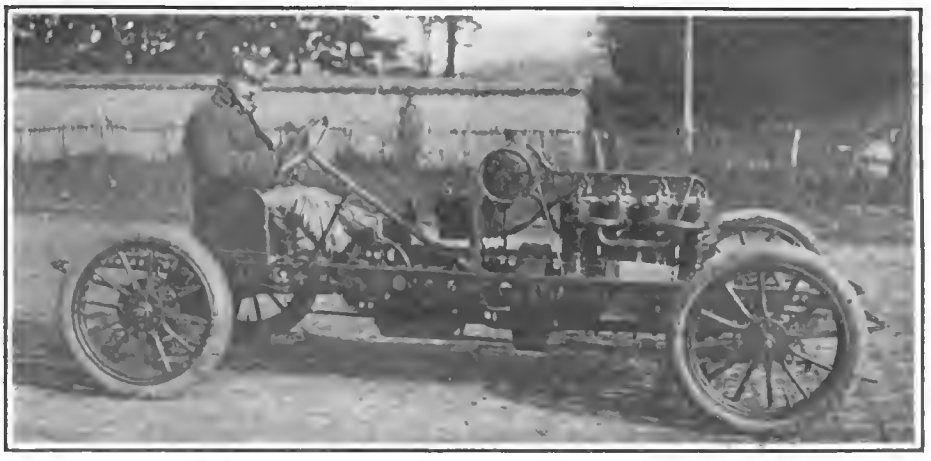
Anzani and his Alcyon Motorcycle Fitted with Buchet Motor, Winner in Lightweight Class in Chateau-Thierry and Gaillon Hill Contests.



BARON PIERRE DE CATERS WINNING FLYING KILOMETER TRIALS IN SPEED CLASS ON GAILLON HILL IN HIS NEW MERCEDES.

In the motorcycle class of less than 110 pounds Ussac on a Peugeot ran a dead heat with Baron de Caters, the smallest and the largest of the racers each registering :31 for the kilometer, flying start (72.1 miles an hour).

An interesting match was run in the light car class (880 to 1.430 pounds) between Hanriot on a Darracq and Albert Clément on a Bayard-Clément car, resulting in a dead heat in :32 4-5. Albert Clément had an exceedingly powerful car of 115-horsepower, a marvel of streugth and lightness. On the slippery road the light vehicle danced madly, and it was as much as the young driver could manage to steer it up the hill at sixty-eight miles an hour. Curi-



ALBERT CLEMENT IN HIS NEW 115-H.P. VOITURE LEGERE OR MIDDLEWEIGHT RACER.

ously enough, the time in this class is exactly that of Clifford Eard in the heavy car class. Both Albert Clément and Hanriot were anxious to make another trial. and it would certainly have been a most exciting contest, for the Clément firm has produced a very fast car and the Darracq was a no mean antagonist. The crowd, however, which had spent the greater part of the afternoon joking at the endeavors of the troops to keep wanderers off the course, had grown tired of the wet and slippery ploughed slopes on which they were confined and invaded the road immediately the last car had passed. The officers found it impossible to again make a clearance, and the match did not take place.

International Race Conference.

Special Correspondence.

PARIS, Oct. 20.—Regarding the letter of inquiry addressed recently to the Automobile Club of France by the German Automobile Club, asking if the French organization was willing to call an international conference of recognized automobile clubs to discuss the organization of one annual speed contest to the exclusion of all others, the cost to be borne by the clubs engaged, the A. C. of France decided at its meeting yesterday to ask the German body to wait until the next meeting of the International Association of Recognized Automobile Clubs, to be held in Paris in December, when this question will be thoroughly discussed.

Should the proposition of the German club be adopted it would result in the abolition of such great events as the Gordon Bennett, the Florio cup and Vanderbilt cup races and the substitution of one annual event to be run in France, Italy, Belgium or Germany. The French club will offer no opposition to the policy of one race per annum as it has no intention of encouraging road racing next year.

The monster European touring and great tire competition which are now being organized make it impossible for the French club to undertake single-handed the additional responsibility of an event of the importance of a Gordon Bennett race.

EUROPEAN 3,000 MILE CIRCUIT.

The proposal to conduct a touring competition of 3,000 miles through Europe next year has been adopted by the A. C. of France. Sub-committees on classification, route, fêtes and car bodies have been appointed to organize the event. The tour, which will be the greatest competition ever held, will last about twenty-five days, during parts of June and July. It will start in Paris and proceed through south France, northern Italy, lower Austria. the cities of Vienna, Prague, Berlin, Cologne, and Brussels and return to the French capital. It is expected that a uniform type of body will be required of all competitors.

RULES FOR TOURIST RACE.

English Club in Quandary Over Rules to Be Adopted.

LONDON, Oct. 17.—The conditions under which the 1906 Tourist Trophy race shall be held are being considered by the Automobile Club of Great Britain, and much discussion has taken place in automobile circles as to how the existing regulations must be modified. In spite of the fuel limitation, the winning car in the recent race managed to average more than thirty-three miles an hour, and this on an unusually hilly course. This speed is too high for the ideal English touring car which it is the object of the race to produce, and hence the rules must be made more stringent. It is easy to fix the fuel allowance at one gallon for every twenty-eight or even thirty miles, but while this would have the desired effect of reducing speed, it would also create a tendency toward high compression engines with probably only two cylinders (for the two-cylinder cars in the late race were far more economical than four-cylinder cars of equal power), and also a tendency to increase the number of gear changes (the Vauxhall car had six), so that a favorable gear might be chosen for almost every different gradient.

These tendencies are quite in opposition to the efforts of modern designers, and so are to be deprecated. The only obvious method that remains is to limit the horsepower by having a maximum cylinder capacity, or better still, a maximum volume swept out per minute. It is probable that the maximum limit of car weight will be abolished, for while no maker will handicap himself with an unnecessarily heavy car, it will obviate the need for paring down standard cars which are slightly heavier than the club, in its wisdom, ordains that the ideal car shall be.

A moderate number of entries has already been received, notwithstanding the manufacturers do not know the rules and conditions. There is no reason why other American cars than the White and Cadillac, which took part this year, should not be entered, and the necessary trouble involved should be more than balanced by the large amount of attention and interest excited by the race among motorists and the general public.

Probable Changes in Laws.

Special Correspondence.

PARIS, Oct. 17.—The proposal to modify the existing automobile laws has raised a great deal of opposition in interested quarters throughout France. Everywhere the Government Commission is being received with criticism, and Senator Gomot, who publicly declared that the country is agitated over the automobile danger; that rifles and pitchforks are held in readiness for use and that clenched fists are raised by the country people on the passage of automobiles, is ridiculed. Count Mortimer-Mégret declares that he is ready to offer, in the name of constructors whose identity he will disclose if necessary, 500 automobiles together with 500 chauffeurs in order to allow the senator to run all over France and judge for himself whether the country people retain their former peacefulness or have become infused with the lawlessness he portrays.

The changes which will be made by the present commissioners, will probably be the fixing of an age limit of seventeen years for operators; a driving examination at fixed intervals, probably every two years; a stricter system of registration and the adoption of fixed instead of movable tags. A more effective automatic horn, the compulsory adoption of speedometers and an

BRILLIE OMNIBUS, WHICH MADE REMARKABLE PERFORMANCES IN CHATEAU-THIERRY AND GAILLON HILL CLIMBING CONTESTS IN FRANCE.

occasional examination of brakes are also proposed.

PARIS SALON PROGRAM.

Competitions and Conventions to Be Held During Show Fortnight.

Special Correspondence.

PARIS, Oct. 20.—Still another event has been added to the already long list of "extras" in connection with the annual Paris Automobile Salon. In view of the rapidly increasing interest now being taken in industrial vehicles, the newspaper *Les Sports* announces its intention of organizing a competition for industrial vehicles during the Salon. The test will probably consist of a run around the outside of Paris, starting and finishing at the Grand Palais.

In addition to the exhibition of automobiles, cycles and accessories, the following interesting events will take place during the three weeks of the Salon: (1) Town-vehicle competition; (2) Tourist congress; (3) Exhibition of works of art dealing with automobiling; (4) Photographic exhibition, consisting of photographs having a historic automobile value; (5) Competition for most artistic stands in the show; (6) Lectures on the technical results of the recent industrial vehicle competition in the north and west of France; (7) Inauguration of the Academy of Sports; (8) Meeting of delegates of foreign automobile clubs to discuss racing program for 1906; (9) Calendar congress to fix dates of most important automobile events for 1906; (10) Competition for device for starting motors from driver's seat; (11) Auto boat races on the Seine; (12) Industrial vehicle competition.

MOTOR STARTING CONTEST.

Rules for Devices for Cranking Engine from Driver's Seat.

Special Correspondence.

PARIS, Oct. 20.—Regulations for the competition for an automatic apparatus for starting automobile motors from the operator's seat have just been drawn up by the technical committee of the A. C. of France. The sum of $2,000 has been offered as prizes in the competition by Henry Deutsch, a member of the Academy of Sports, one-half of the amount to be awarded in 1905 and the other half in 1906. The regulations drafted are as follows:

1. The competition, which will be international, will be held during the eighth Paris Automobile Salon, from December 12 to December 15, 1905. Entries will be received up to December 8 at the offices of the Sporting Commission of the Automobile Club of France, Paris.

2. The apparatus must be designed to start internal combustion engines of automobiles with one or more cylinders.

3. The starting must be done from the driver's seat by some easy method. Any kind of mechanism (or storage battery, if necessary) may be employed, but account will be taken of dimensions and weight. Trials will be made with a cold motor as well as with an engine heated by running.

4. The jury will take account of the ease of operation, the installation, price of the apparatus, expense of adapting it to existing automobiles and the cost of upkeep.

5. Competitors must present to the jury, in addition to complete designs of their inventions, an apparatus in working order on an automobile of one or two cylinders equal or superior to 20 horsepower. Models or designs alone will not be accepted.

6. The jury reserves the right to offer the whole or a part of the prize in December, 1905, or to carry the whole or a part of it forward to December, 1906.

Foreign News Notes.

The touring Congress to be held from December 11 to 16, in connection with the Paris Automobile Show, promises to do useful work. The congress will consist of members of the Touring Club of France, the Automobile Club of France and recognized foreign automobile clubs that shall have paid the subscription of $4 before December 1. Ten sections have been formed, each with its own president and committee, to deal with the following subjects: Popularization of touring, national interest in the development of touring; suitable means for the development of touring; roads; hotels and garages; schools for mechanics and chauffeurs; assurance; taxes; legislation; publications on touring and automobiling. The Eastern Railroad of France will offer tickets at greatly reduced prices to members of the congress if the demand is made in advance, and it is expected that the same privilege will be granted by other railroad companies.

Hardly has summer departed before the season of the shows arrives. For once England is taking the lead, and the Olympia Show, which opens November 17, has the advantage of its rival at the Grand Palais in Paris. It is probable that the 1906 French models will be on view for the first time, but in any case the representative exhibition of cars of British manufacture will be unique both in point of numbers and in the advance made in their construction. King Edward VII has become patron of the show, but it is hardly likely that he will make official recognition of the industry by performing the opening ceremony. The King has long been a keen motorist, but has lately been using his cars very frequently for covering long distances. Generally a high-speed average is maintained, and the royal prerogative must come in very handy in that land of police traps.

An automobile omnibus tour to the South of France is being organized by the London Motor Omnibus Company, which has for some time been operating a bus daily from London to Brighton and back. The French tour will start at a point in France—perhaps Rouen—on November 18, and after a thirty days' trip will return on December 18. The car will be one of the firm's stock omnibuses, with the addition of extra fittings to increase the comfort of the sixteen passengers, as, although the car has seating capacity for double that number, provision has to be made for the passengers riding either inside or outside according to the weather. The cost of the tour will be $250 apiece and this includes first-class rail and boat fares where necessary, and all hotel and incidental expenses. If the trip proves a success, a large number of such tours will be undertaken in England next summer.

A 500-mile run from Brighton to Edinburgh was made recently in England by a six-cylinder Napier car without any recourse being made to the lower gears, even for starting. To show that the car was not geared low especially for this run, a mile sprint was timed at the rate of more than forty-five miles an hour, while, at the other extreme, 100 yards was covered at the rate of one and one-half miles an hour.

The German Daimler works is building three racing boats for next year, and the Fiat company at Turin also intends to contest for supremacy on the water with some new fast racers.

The Prussian War Department has recently been testing an armored automobile, entirely encased in steel and capable of conveying several guns. Only one gun was mounted when the car was experimented with in the War Office yard, a large number of technically educated officers being present.

The Motor Union of Western India will conduct a reliability tour from January 17 to 21, starting from and returning to Bombay. A hill climb is included on the third day. No paid men are allowed to drive, it being an amateur event.

An automobile show will be held in Egypt either at Cairo or Alexandria, at the end of next year, it having been postponed from the present season. Great efforts are being made to induce the British trade to be fully represented.

New motor cabs are being built for London which are to have the driver's seat at the back, as in the ordinary hansom type. The vehicles will be fitted with 12-horsepower, three-cylinder engines.

The Darracq firm have acquired a large piece of land in Lambeth, London, alongside of the Thames, and will shortly commence to erect a factory on it.

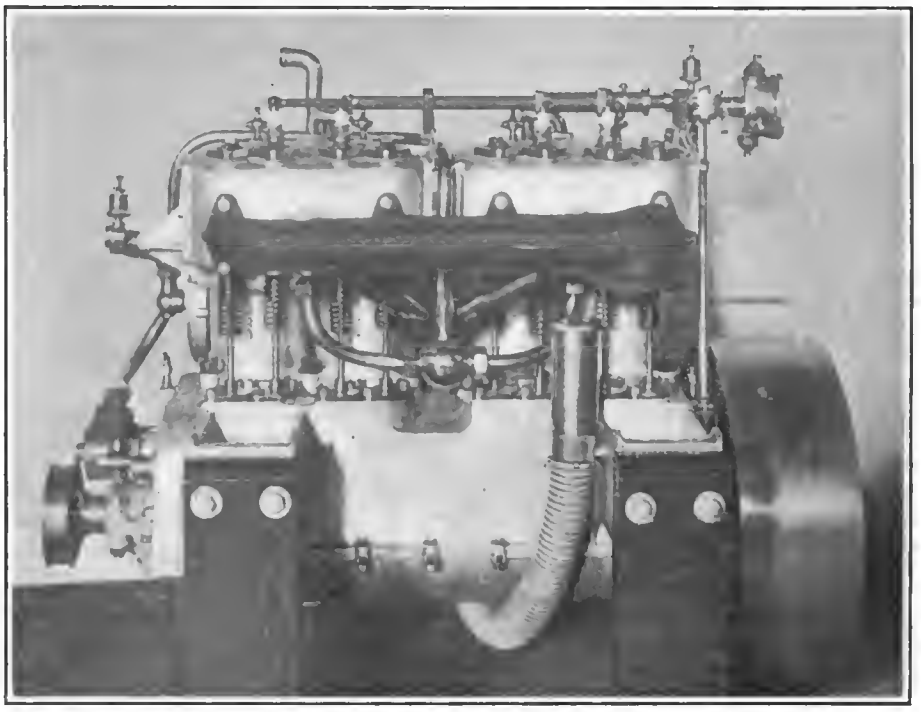
C. S. Rolls & Co. are putting on the market an absolutely new car, which is so designed as to keep a constant speed of twenty miles an hour up and down hill and on the level without changing gear, thereby warranting its name of "Legalimit," which does not need any further elucidation. The first car has been ordered by Sir Alfred Harmsworth, of journalistic fame.

Chadwick Touring Car, 1906 Model.

THE Chadwick touring car, built by the Fairmount Engineering Co., of 3207 Spring Garden street, Philadelphia, is a large, powerful machine which does not differ in outward appearance from the general type of touring car to which it belongs. A number of the details are worked out in an interesting maner, however, as will be seen by the following description and illustrations.

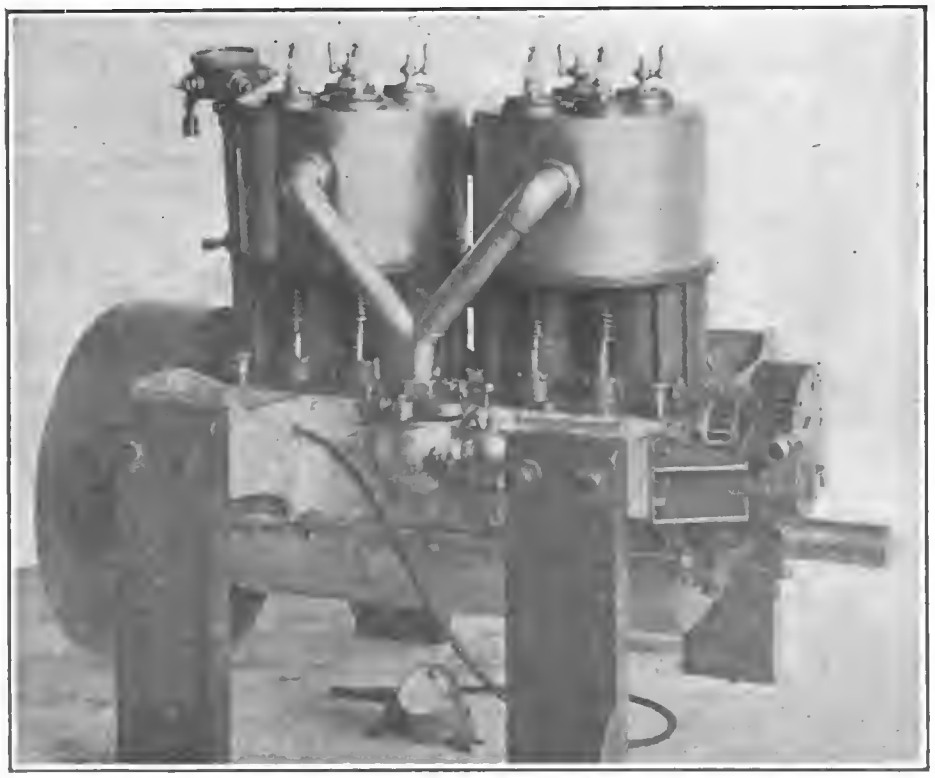
The Chadwick car is built with either 24-horsepower motor or 40-horsepower motor; apart from the engine and a few minor details, however, the two cars are exactly alike; the more powerful motor increases the weight by about 150 pounds. The body may be of the rear entrance type or with side entrances, as may be desired, and in either steel or aluminum. With rear-entrance body and the smaller motor the car weighs 2,400 pounds and has a wheelbase of 94 inches; while with side-entrance body the weight is 2,500 pounds and the wheelbase 108 1-2 inches. The tread is 56 inches. Bodies of wood, or of any material and any style will be built on order, and the finish made to suit the purchaser.

The motors differ somewhat in appearance, as the engravings show, and also differ somewhat in construction. The 24-horsepower motor has a bore of 4 1-2 inches and a stroke of 5 inches; valves are 1 7-8 inches in diameter, and are all located on the left-hand side. The 40-horsepower motor has a bore of 5 inches and a stroke of 6 inches; the valves are located on opposite sides of the cylinders, the inlet valves heing on the right and the exhaust on the left. With the exception of these differences and the slight modifications in details that necessarily follow, the motors possess the same general features. Drive is by side chains.



VALVE SIDE OF CHADWICK 24-30-HORSEPOWER ENGINE, SHOWING INLET AND EXHAUST PIPES —Note Method of Distributing Water to Each Pair of Cylinders and Air Intake on Flexible Tube Leading to Carbureter.

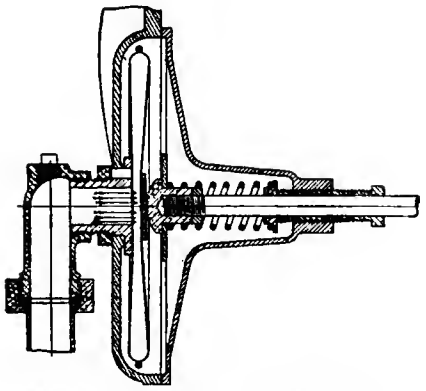
The motors are balanced with great care and the manufacturers state that a glass filled with water to the brim may be placed on the head of a running motor without spilling the water from the glass. The cylinders are cast in pairs, but there is an open space between the two cylinders of each pair, so that water circulates all round each cylinder, the Fairmount Engineering Co. believing this to be better practice than joining the castings so that there is no water space between the cylinders. Valves are mechanically operated, and are of the same size and interchangeable; the two-to-one gears are enclosed in the engine base; push rod guides are so constructed that they can be quickly removed for inspection, and as quickly replaced. A nickel alloy is used for the exhaust valves on account of its freedom from deterioration under the influence of heat.



INLET SIDE OF CHADWICK 40-45-HORSEPOWER ENGINE. Note Copper Water Jacket for Each Pair of Cylinders, Also Direct Geared Water Pump.

The crankshaft is made of high-carbon steel—35 point—and runs in three bearings, there being an intermediate bearing between the two pairs of cranks. The arrangement of the crankshaft and bearings is clearly shown in the engraving of the upper half of the crankcase with the bottom removed; this also shows the ring oilers in the end bearings, the two-to-one gears and the camshaft. Holes drilled lengthwise through the crankpins admit oil, which is carried to the connecting rod bearings by radial passages in the crankpins. The connecting rods are steel drop forgings, and work through slotted plates in the cylinder bottoms, thus preventing an excess of oil from entering the cylinders.

The flywheel is cast with vane-shaped spokes and is bolted to a flange on the crankshaft, six heavy steel bolts, closely fitted to reamed holes, making a secure fastening. The vanes in the flywheel serve



CROSS SECTION OF WATER PRESSURE GOVERNOR ACTING ON THROTTLE.

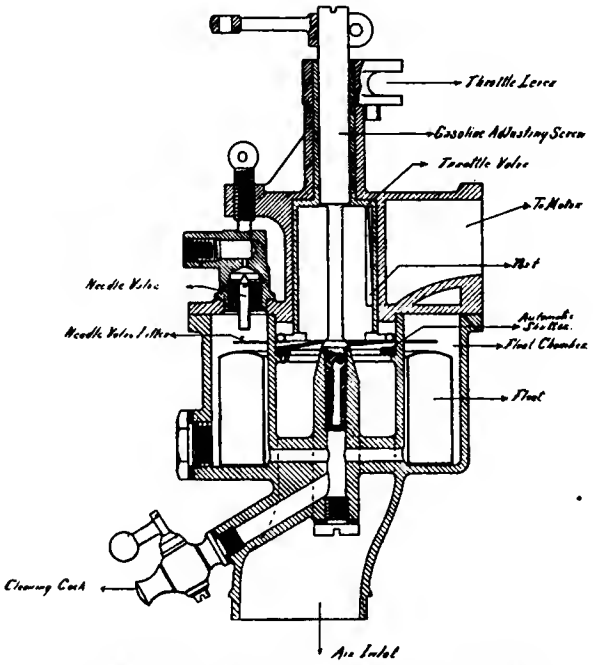
the double purpose of assisting in keeping the motor cool and of drawing the heated and odorous air downward and away from the passengers in the car.

The cylinder castings, before being finished, are subjected to a six months' seasoning after being rough bored, and are then given a heat treatment to equalize the tension throughout the castings as far as possible, and thus avoid a possible cause of warping after the cylinders have been finished and put to work. The crankcase is of aluminum and has integral supporting arms long enough to extend to the side frames.

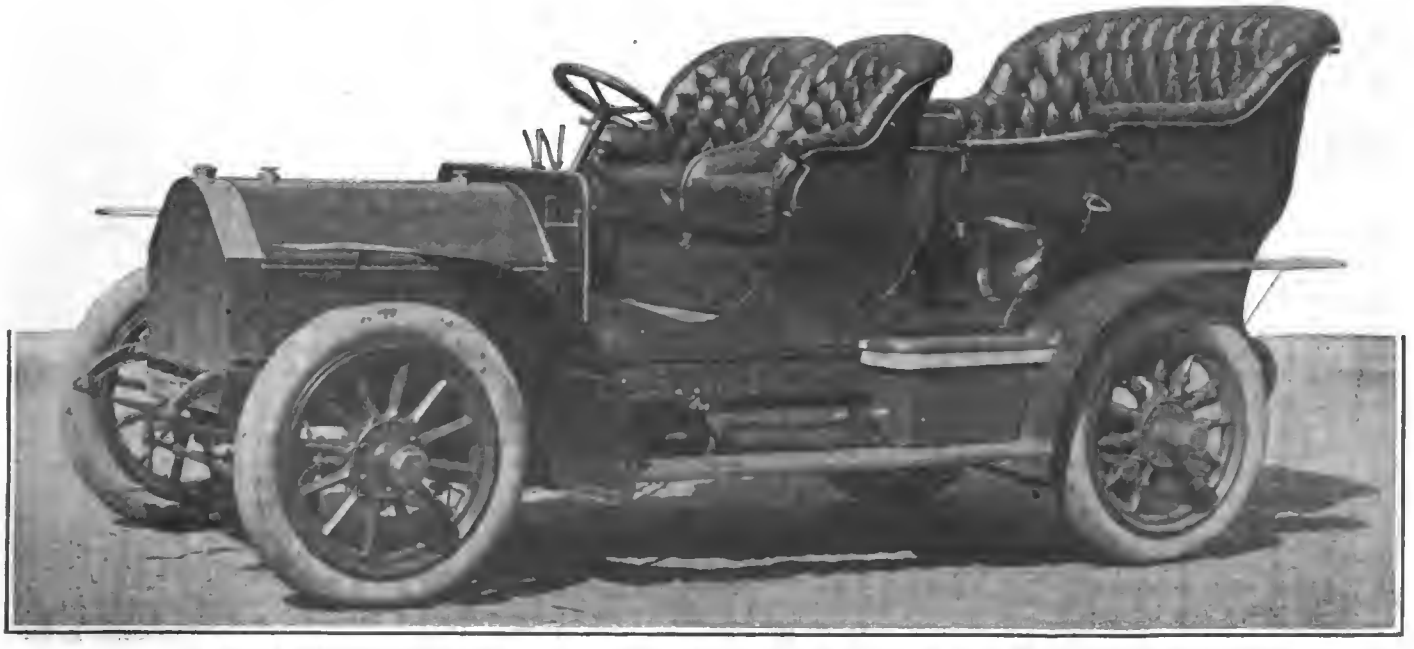
A very interesting feature of the motor is the hydraulic governing system, in which the pressure of the cooling water is the actuating force. The pressure of the water is allowed to act on a governor, which is illustrated herewith; a flexible copper diaphragm, backed by a coil spring, is connected to the end of a rod which operates the throttle. As the water pump is positively driven, the pressure of the circulating water bears a definite ratio to the speed of the engine; thus the throttle is gradually opened or closed as the engine speed varies. If the engine speed changes rapidly, the governor acts rapidly, and *vice versa*. The builders state that the governor requires no oil and will work without attention. If anything goes wrong with the pump, the governor acts as a tell-tale by reducing the speed of the motor and thus warning the driver that his motor is in danger of overheating. The governor can be adjusted to give any desired speed within a wide range.

Water pressure is also used to supply the pressure that forces the oil to the various bearings. A small oil tank, placed at the side of the car, has a pipe connection in the bottom leading to the water system; the oil feeds lead from the top of the tank. The reservoir is filled with oil and afterwards the water is turned on by means of a small cock in the water pipe. The pressure of the water forces the oil out at the top through the lubricating leads, the oil remaining on top because of its lower specific gravity. When the oil in the tank is exhausted the water is allowed to run out, and the tank is again filled with oil. The rate of feed is regulated by adjustable sight feeds on the dash.

Four coils and the distributer for the jump spark ignition are placed on the dashboard in front of the driver. The distributer is of a special form, there being on the shaft a revolving cylinder carrying a contact piece which makes contact successively with each of the four brushes; the brushes are connected to the leads by means of binding posts, in the usual way. One of the advantageous features of this distributer is



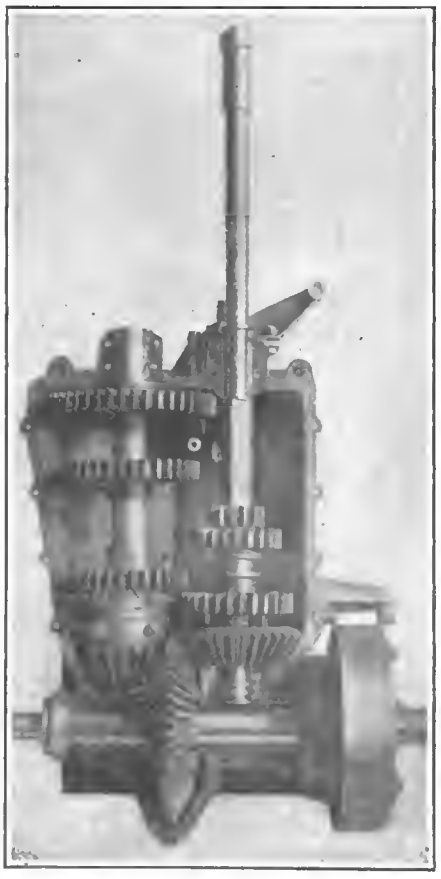
CHADWICK AUTOMATIC FLOAT-FEED CARBURETER.



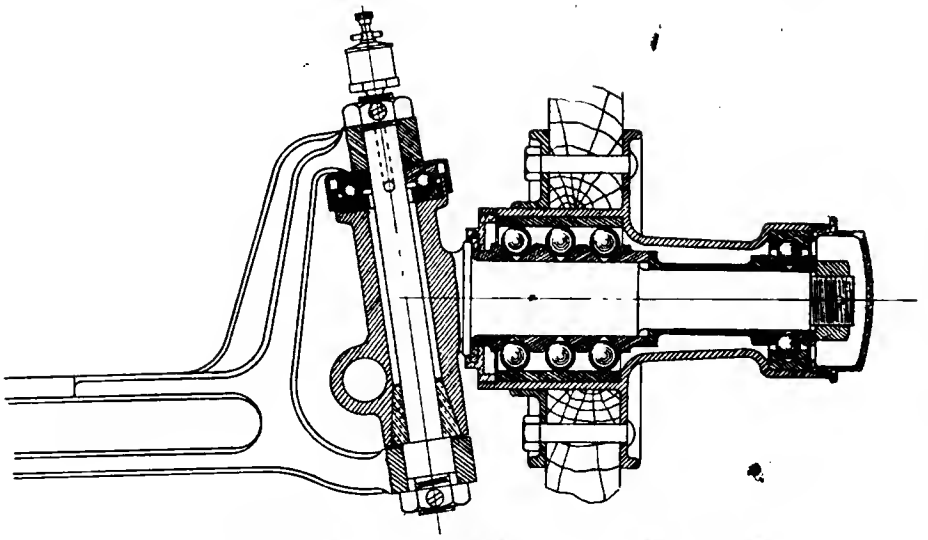
NEW CHADWICK 40-45-HORSEPOWER TOURING CAR FOR 1906, BUILT BY FAIRMOUNT ENGINEERING WORKS.

that any brush may be instantly withdrawn from contact with the central revolving cylinder for testing purposes, without the use of tools; and the revolving cylinder may be moved, cleaned and replaced within a minute. Dry batteries, storage batteries or mechanical generator are optional.

The carbureter has an annular float surrounding the mixing chamber, in the center of which is the gasoline spray nozzle. Carbureters constructed on this principle are unaffected by road grades, the height of the gasoline in the spray nozzle remaining constant regardless of the inclination of the car. The line engraving shows the construction of the Chadwick carbureter. The proportion of gasoline to air is regulated by connecting the throttle shutter with a valve that varies the area of the gasoline nozzle, increasing it as the velocity of the air decreases and *vice versa*. The gasoline valve is independently adjustable. Noise in the air inlet is avoided by providing a large opening for the air to pass through. The gasoline drawn through the spray nozzle is broken up into a fine spray by the sharp edges of the valve, and is thus more readily mixed with the air. A screw in the cover of the carbureter serves to regulate the height of the gasoline in the float chamber. There is a straight, vertical passage of comparatively large diameter from the spray nozzle to the clearing cock at the bottom of the carbureter, so that sediment and dirt will fall through when the cock is opened; this makes a quick and convenient way of clearing out the nozzle.



FOUR-SPEED DIRECT DRIVE TRANSMISSION AND BEVEL GEAR DRIVE.



BALL BEARING STEERING KNUCKLE AND FRONT WHEEL HUB.

The clutch is of the well-known cone type with leather facing; springs are placed behind the leather to prevent the clutch from taking hold "fiercely." The body of the clutch is of aluminum and the clutch shaft runs on a ball bearing of special type; there are three rows of balls, and on the shaft between the rows are loose steel rings forming the inner races, and, by reason of their movement, automatically equalizing the load on each row of balls. The front wheels run on ball bearings of the same type; the line engraving of a front axle end and steering knuckle shows the arrangement clearly.

The sliding gear transmission, giving four speeds forward, with direct drive on the high speed, and one reverse, embodies a number of interesting features. The primary shaft, which the engraving shows extending upward from the gearcase, is of the usual divided type, the squared part carrying a solid group of three sliding gears rotating independently of the larger bevel pinion. Low speed is obtained by meshing the smallest pinion of the sliding group with the largest gear on the countershaft. Drive to the jackshafts is then through the bevel pinion on the end of the countershaft to the bevel gear on the jackshaft, the second bevel pinion meanwhile running idle. The intermediate gear of the sliding group, meshed with the intermediate gear on the countershaft, gives second speed; and a further movement of the sliding group brings its largest gear in mesh with the smallest gear of the countershaft, giving third speed. First, second and third speeds all drive through the bevel gear on the countershaft. To obtain the highest speed, with direct drive, the sliding group is caused to continue its movement until a claw clutch, half of which is formed on the end of the sliding group and the other half on the hub of the bevel pinion, interlocks and causes the shaft to run solid and drive through the larger of the two bevel pinions, the bevel pinion on the countershaft running idle. The large bevel gears, facing in opposite directions, are bolted to a flange formed on a sleeve which is an integral part of the differential gear casing seen on the right-hand side of the engraving. Two ball bearings, one close to the hub of the left-hand large bevel gear and the other in the small casing further to the left on the same shaft, just outside the gearcase, take the thrust of the driving pinions in both directions. The reverse is obtained by placing the gear in neutral position—with the smallest and the intermediate sliding gears between the largest and the intermediate gears on the countershaft, all being out of mesh. A wide-faced pinion under the primary shaft, just visible in the engraving, is then shifted until it meshes with the large or slow speed gear on the countershaft and also with the smallest sliding gear. This reverses the direction of rotation of the countershaft and gives a slow speed backward. The reverse pinion when not in use is housed in a hollow in the end of the gearcase; it is shifted by a bell crank hung on the bracket on the end of the gearcase.

The differential case, including the sleeve carrying the large bevel gears, is of 20-point carbon steel and is hardened and ground inside and out; the jack shafts are forged solid with the differential gears and the sprockets are keyed to the tapered ends. The shorter jack-shaft, on the right-hand side of the gearcase, is hollow and lubricating oil or grease for the differential is fed through it.

Control of the four speeds and reverse is by a single lever of a type called by the makers "semi-selective." Starting from the neutral point, the slow speed is obtained by pulling the lever backward. One notch forward from neutral gives second speed; and rocking the lever inward from neutral point gives the reverse. All this is done without going through any other gears than the ones wanted. After passing through second speed, a further movement of the

lever gives third, and finally the high speed, An interlocking device prevents the shifting of gears when the clutch is engaged, and another device makes it impossible to pass through two successive gears unintentionally; a grip on the lever handle must be pressed each time a change is made.

The car has a pressed steel frame, reenforced where the frame is offset near the front. The rear ends of the main frames are joined in the usual way by a steel crossmember hot riveted in place; but the usual front cross member is absent, for the novel expedient is adopted of making the arms of the motor crankcase serve not only to support the motor, but also to connect the front of the frame. Three light tubular cross pieces bolted to the side frames serve to support the transmission gear case and the main brake. No holes are drilled through the lower flange of the frame. Springs are of imported Swedish steel, oil tempered and semi-elliptic in form; they are 38 inches and 48 inches long in front and rear respectively. The front springs are 2 inches wide and the rear springs quarter of an inch wider. Both axles are of drop forged soft steel of I-beam section; the steering knuckles are of the same material; the pivots turn on ball bearings, as do the road wheels. The illustration showing the front axle end, steering knuckle and wheel bearing is so clear that a description is unnecessary, though attention may be called to the compensating rings between the rows of balls in the wheel bearing. Ball bearings of the same kind are used for the rear wheels, the transmission shaft and the outboard bearings of the cross shaft carrying the sprockets. Wheels are of hickory with cast steel hubs and are fitted with 4 1-2-inch tires.

Emergency brakes, actuated through powerful toggles, expand within metal drums on the rear hubs; the friction surfaces are metal to metal and the brakes act equally well whether the car is running forward or backward. The service brake consists of a foot-operated band and drum on the countershaft; the drum is flanged so that the brake can be water cooled if used in an excessively hilly country; for this purpose a small tank of water can be carried. This brake also is double acting.

As the illustration of the complete car shows, the body is gracefully curved and the rear seat is roomy; an unusually large amount of leg-room is provided. The side doors open forward and are wide enough to permit easy entrance; the running board and the sprocket box form easy steps. While the body illustrated is the standard design, any other form will be built to order. of any suitable material, and finished to suit the taste of the purchaser.

INSPECTION AND RECORD SYSTEM.

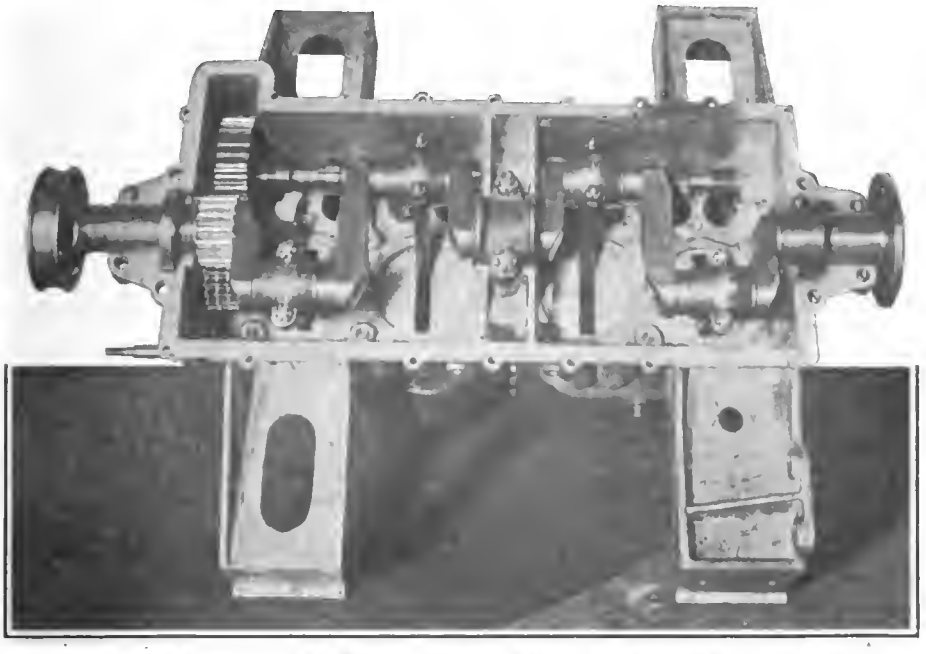
An interesting detail of automobile factory work is a system in use in the Winton factory for keeping a complete record of every car in its constructive progress through the establishment. This record is kept on a card that accompanies the car from the time it is assembled until it is shipped to the purchaser, when the card is filed away. Should any defect develop in the car thereafter, the responsibility for it can be traced directly to the man who passed the part as being perfect, whether it be in the engine, the transmission, frame, body, upholstering or painting. The blame cannot be shifted onto anyone else, because the man's own initials follow his O. K. on the card record under that particular heading. Such a system makes every department foreman or responsible workman very careful to see that his part of the work is thoroughly and properly done, and thus insures a high quality of workmanship in every department and throughout the car.

Each record card is 8 1-2 inches long by 6 1-2 inches wide, and for convenience in handling and preventing destruction while traveling through the shop, is mounted in a special frame made for the purpose. On one side of the card is a printed form having blank spaces under different headings for the inscription of the O. K. and the initials of the different men as the car progresses from one department to another. The record is started with the number of the order, followed by a brief general description of the car as it is to be when finished—that is, the gearing and motor numbers, style of body and color of painting. The card then goes out from the office to the shop and follows the car through the various departments. The inspector who passes the motor as being perfect initials the card in the proper space. Another inspector passes on the transmission, and his initials are recorded in the proper place. The man who fits the main bearings, the cam setter, the steering gear inspector and the man responsible for the mounting and assembling of the machinery all initial the card. The motor is given a brake test for power, and the tester signs the record. In another department wheels and axles are fitted—another initialing. Then the road tester, who gives the car its first run outdoors, adds to the record his signature and any remarks he may have to make on the result of his work.

After the road test, the entire car is carefully examined and O.K.'d by another inspector before it goes to the paint shop. The various employees responsible for the body work, painting and trimming put their O. K.'s on record; then the completed car is given a track test and a final inspection, when it is ready for shipment. Any special work done, or any changes from the regular stock equipment are noted. The consignee. destination, routing and date of shipment are recorded, and the card is then turned back to the office.

Naturally, the face of the card is much the worse for having come in contact with grimy hands, but the reverse is clean and ready to receive remarks regarding the future movements of the vehicle. Every Winton agent is expected to keep the factory informed as to what becomes of each car. The name and address of the first purchaser are given, and if the car changes hands the factory receives a notice to that effect, if the agent is aware of the transaction. There are a number of sources of information that help in keeping track of cars, and it is stated by the Winton representatives that surprisingly accurate records are kept of the movements of many machines.

This is only one of the details of the systematic working of a large automobile manufacturing establishment; but it goes to show what close attention is given to mattres that might, to an outsider, seem trivial.



INVERTED 24-30-HORSEPOWER MOTOR, WITH LOWER PART OF CRANKCASE REMOVED, EXPOSING CRANKSHAFT AND CONNECTING RODS.

THE AUTOMOBILE

VOL. XIII. No. 18

Published every Thursday by

THE CLASS JOURNAL CO.,

Flatiron Building, Madison Square,

NEW YORK CITY.

Cable Address - - - - Autoland, New York
Long Distance Telephone - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2.00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 5 o'clock p. m. Monday for the issue of Thursday following.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies Printed in 1904,	- - -	639,200
" "	This Issue, - -	14,500
" "	Since Jan. 1, -	618,000

Escape After Accidents.

It is not at all uncommon to read an account of an automobile accident in the daily press which concludes with the statement that the occupants of the car drove off without leaving any name or address, and without stopping to make proper inquiries as to the extent of injury to person or damage to property. In some cases reported the results of such a mishap have been fatal to the person struck by the car, and yet its occupants have gone away and have never been caught.

At first thought this line of action on the part of the automobilist seems dastardly, and frequently causes the reader to wish that the occupants of the car had met with violent punishment at the hands of the crowd in the street. And even a more extended and impartial consideration of the circumstances often can find nothing that would excuse the conduct of those who endangered or destroyed life or property, and then got away.

There must be some underlying reason, however, why the man in the machine thus tries to evade responsibility, for he is of the same kind as the man afoot or in a vehicle—an average citizen, and usually an intelligent one, and possessed of a full appreciation of his responsibilities and duties as a citizen.

It should not be forgotten in this consideration that the man in the car who drives away after a serious accident may not know, and indeed is not likely to know, how serious it really is. For instance, he knocks down a man or woman in the street and dashes off, not waiting to discover whether it is a case of outraged dignity or fracture of the skull. The persons in the crowd who linger about the spot have time to learn the full details and so have those who read the report in the newspapers and their measure of censure is the seriousness of the accident.

In our judgment the underlying cause for a cowardly retreat in nine cases out of ten is the firm belief that the automobilist will not get fair play if he remains to meet the consequences of the accident, no matter who is at fault. We are not assuming the rôle of apologist for the man who gets into trouble and drives away; we are simply seeking an explanation of the regrettable fact that many do so. The average driver has no desire to be martyred for the cause of automobilism even if his martyrdom may be nothing more severe than the defense of a suit which like as not is simply blackmail. Anyone who is constantly in touch with autoists, both personally and by letter, cannot fail to notice the remarkable uniformity of opinion that in any personal injury dispute the owner of the car is likely to "get the worst of it." That this is no idle belief is proved by the scores of cases of more or less successful blackmail levied on motorists. The very act of stopping a car after an accident, however slight, to make inquiry is looked upon as a confession of weakness, if not of guilt, and is usually taken advantage of by the victim. The shyster lawyer of the ambulance-chasing type is often somewhere in the background.

In our last issue a resident of New Jersey, well known to the trade, narrated a personal experience in which the man injured was manifestly entirely to blame and our correspondent had acted with great consideration and courtesy toward the man immediately after the accident. Yet he was mulcted in the sum of $500 damages after a jury trial.

Such experiences are great provocation to disregard the man in the road when a mishap occurs and it is not an unusual manifestation of human nature that many do seek to escape. In this consideration we have taken no account of accidents due to recklessness of drunken employees, which frequently occur, though, fortunately for the public, with more serious injury to the occupants of the car than to anyone else.

Automatic Starting Devices.

The general acceptance of the correctness of the modern type of touring car, and the consequent policy of manufacturers to improve details rather than make sweeping changes have resulted in a number of competitions, most of which are held in France, for various automobile parts. The latest competition, details of which will be found on another page, will be for automatic starting devices for gasoline automobile motors.

There are several more or less serious objections to the present method of starting the motor. Perhaps the most serious is the necessity for getting out and "cranking" in case of an unexpected stoppage in heavy traffic, when delay may mean something more serious than the mere loss of a couple of minutes—a collision, for instance, occasioned by the fact that the car is temporarily helpless and unable to move out of danger. Another objection to the cranking operation is that the driver must take the road as he finds it; if there is a pool of mud at the front of the car, he must stand in it to turn the crank, for he cannot choose his position. Even if the car is standing by a curb, the driver will as a rule jump out and wade through the mud rather than disturb the passenger on the front seat, in case the car is standing with the left-hand side to the curb. The necessity for walking in the road was long ago recognized as a serious drawback to the use of the rear entrance tonneau, and the side entrance car, easily reached from the curb, followed the full realization of the defect. The practice of cranking is open to other objections, of less importance; a back kick, caused by trying to start the motor with the spark advanced, may cause serious personal injury, though this invariably results from carelessness or ignorance; the starting of a large motor entails the exertion of considerable strength and is therefore much disliked; and there are other minor objections that will doubtless present themselves to automobilists.

A number of methods of automatically starting the motor have been suggested or tried with various degrees of success. First may be mentioned the well-known method of starting with the spark. This is done by causing a spark to occur in that cylinder of a multi-cylinder motor which contains a charge of gas and whose piston has moved a short distance on its downward stroke. While this method is frequently used, it is open to the objection that it is very uncertain, for the motor must stop in exactly the right position; if the cranks are on the dead center or too far advanced in their stroke the motor will not start on the spark. Moreover, there must be a charge of gas in the cylinders; and when the charge has leaked away, as it must, sooner or later, the spark will not start the motor even if other conditions are favorable. The sudden and heavy blow of the explosion, and the enormous strains set up in suddenly starting a heavy flywheel from a state of rest, must also be considered; on this account the spark method of starting from the seat is not recommended. A strap has been coiled around the crankshaft; a strong pull on the strap caused the motor to turn over and start; but this is obviously unsuitable for anything but small machines, and, besides, it is not in the automatic class, requiring

physical exertion. The pressure of air, compressed by a pump driven by a motor, has been used to start the motor by admitting it to the cylinders, as steam is admitted to the cylinders of a steam engine; and the exhaust gases from the motor, accumulated in a tank or receiver, have been used in the same way. Compressed air and gas have been used to drive a small oscillating engine geared to the motor crankshaft. An electric motor, deriving its current from a storage battery, has been used, driving the engine through sprockets and chains. Perhaps the most recent plan was that tried on a large English explosion motor used to propel a railroad coach. A cordite cartridge was exploded in one of the cylinders, giving the motor the necessary first impulse. Cordite is a smokeless powder which, on detonation, is converted wholly into gas and leaves no appreciable deposit. There is always a possibility, however, that the engine will not "take hold" on the first impulse, and in that case another cartridge must be exploded.

Though the motor may be actually started by any one of these methods, each is open to some objection—weight, bulk, complication, expense, or loss of time in getting into operation. Doubtless the defects can be eliminated, however, and the stimulus of competition should do much to bring out improvements in all the details of the automobile.

✱

For a number of excellent reasons automobile manufacturers and automobilists are looking forward to the forthcoming New York automobile shows with pleasurable anticipation. It is an undeniable fact that interest in the automobile in the metropolitan district has received a strong impetus from the Vanderbilt cup race, which is sure to have a marked effect on the attendance at and interest in the shows. As a spectacle, the absence of crowding of exhibits, the uniformity and tastefulness which will doubtless characterize the decorations, and the more refined appearance of the cars will place the 1906 shows far above past national exhibitions. As far as can be judged from present indications, the shows will present no startling innovations, such as were features of the old-time shows. A steady, natural development is taking place on all sides, and refinements of detail rather than radical changes in design may be expected. As an indication of the trend of motor development toward simplicity, it is noteworthy that two-cycle motors will probably demand a larger share of attention than heretofore, and will provide the nearest approach to novelty that the shows will afford. The possibilities of kerosene as a fuel for explosion motors will probably also be brought to the attention of the public.

Australia improted automobiles and parts to the value of $594,880 during 1904.

Observations on Foreign Touring.

Special Correspondence.

MINNEAPOLIS, Oct. 28.—George H. Daggett, of this city, holds the record of the Minneapolis Automobile Club as a tourist. He recently returned from an extended tour through Italy, Belgium, Holland and England, and has given some valuable information to his fellow motorists who are contemplating a trip abroad.

"Our auto was a 1905 Packard of 28 horsepower, and with double side entrance," said Mr. Daggett, when asked about his touring experiences. "Besides the standard equipment, we had ordered two Solar headlights and a Jones speedometer-odometer, the latter indicating not only the distance traveled but also the speed at any given moment. This gauge proved a very interesting feature of our trip, adding much to our enjoyment, especially as it gave us a chance to keep close watch on the foreign chauffeurs, who drove for us most of the time.

"The auto was carefully boxed by the manufacturers, for which they charged $50. From our own experience, neither chains nor rods are necessary to handle the box. The machine measures approximately 12 feet in length, 5 feet total width, by 5 feet in height, making about 300 cubic feet when boxed, but the steamship company charged on 425 feet going over and 413 returning.

"The freight figures are about as follows: 15 shillings per 40 cubic feet, equals $3.50; five per cent. on this is 17 1-2 cents, making a total of $3.67 1-2 per 40 cubic feet. At this rate the charge for 425 cubic feet equals about $39, to which must be added $1 for loading, bringing the total charge up to $40.

"We left the steamer at Naples, Italy, where a new law had just been promulgated with regard to imported cars. Heretofore the duty of issuing permits to operate such cars has been vested in the prefect, and those who stood well with him or in whom he had confidence, had but little trouble. The new law places the matter entirely in the hands of the customs officer, who not only passes the machine on payment of duty, but also issues a permit to run the machine for a limited time anywhere in Italy. I was asked for my permit to drive in America, but a receipt for dues from the home auto club was sufficient to overcome this obstacle, and the officer at once issued a driver's permit.

"After obtaining this permit from the customs office we needed and used no other papers in Italy. Furthermore, this paper paved the way for entering other countries. A chauffeur in Italy receives a permit printed on a card about the size of an envelope, and in the upper lefthand corner of this is pasted his photograph. Matters could be facilitated on the other side by securing such a permit through your local club before starting, and also a bill of sale from the manufacturer of your car, giving the number, make and weight of the machine.

"We were fortunate in finding a young French chauffeur who also spoke Italian, though in English he was simply speechless. We paid him 250 francs a month—$50—and also paid his living expenses. He ran the machine when we required it; at other times he sat on the foot boards as mechanicians do on racing cars.

"Dante, that was his name, proved a veritable find for us, and right here allow me to suggest to contemplating tourists not to think of traveling without a chauffeur. There is no pleasure in driving up to a hotel entrance at the end of a day's journey, unloading your passengers and baggage, then starting on a hunt for garage and spending the evening, which should be devoted to rest and companionship, in oiling and cleaning your machine.

"Our auto was first used in Naples on Sunday, March 26. A short trip about the city and out to the bay was made. We found the streets narrow, but fairly well paved with large, flat stones. An occasional depression gave the machine a bit of a jolt, but nothing comparable to the jars received on the American streets.

"Benzine, as gasoline is called in Italy, was procured by Dante. The price paid was about eighty cents a gallon. This was the average price throughout Italy. In France it was about forty cents, outside of Paris. In Belgium it dropped as low as twenty cents.

"Besides the usual tools furnished by the factory, we had a collapsible canvas bucket and a wheel jack, both of which proved invaluable, and our steamer rugs were later packed aboard the machine for use on chilly days and in the higher altitudes. We also carried the inevitable Kodak and a pair of field glasses, which added much to our pleasure on land and sea.

"Our baggage consisted of a steamer trunk for each couple, measuring fourteen inches high by two feet wide and three feet long, which is the extreme limit of size allowed by the White Star line. We also carried a leather suit case apiece and a hand bag for each passenger. The gentlemen carried their evening clothes, which were used frequently in large cities at dinners and in the evenings, as well as at operas and at entertainments, for, as all foreign travelers know, it is quite the custom abroad to dress in the evening. The ladies carried such clothing as they would have taken had they traveled by rail. While in the auto they invariably wore medium-sized hats, heavily veiled on account of the troublesome dust. Waterproof auto cloaks protected their garments from both dust and rain, and were worn almost constantly.

"Our American Express Company checks were used in all of the large towns and were very handy. The trip itself cost no more than a tour of equal length would in this country, but of course, being human, we indulged in numerous purchases of many beautiful things that met our eyes. But these should not be charged against automobiling. Hotels, even the best, like the Carlton in London, are about half as expensive as in America, while food is also less expensive *a la carte*. Clothing is cheaper, and motor supplies cost less, excepting gasoline. On the average, you can travel 1,000 miles in Europe more cheaply than you can a similar distance in America.

AN OLDSMOBILE REUNION.

A novel event to be held in New York on November 7 will be a gathering of Oldsmobile owners at the Empire city track. The Oldsmobile company of New York has sent out invitations to all "Oldsmobilists" in New York and vicinity to be the guests of the company at luncheon, each bringing a friend. During the afternoon short races and gymkhana events will be held and prizes will be given the winners. If, as is expected, there are more than seventy-five Oldsmobiles present, there will be a drawing for a 1906 Oldsmobile runabout, the machine to be presented to the winner on the spot. It is stated by the Oldsmobile Company that there are about 800 Oldsmobiles in and about New York city.

FLORIDA PROGRAM.

Variety of Events Arranged for Ormond Beach Tournament.

The program for the Florida Automobile Tournament of 1906, to be held on the Ormond-Daytona beach during the week beginning January 22, comprises nineteen events, at distances of from one kilometer to 100 miles. Events are provided for racing cars of all classes, but the touring cars are restricted to a single event—a fifteen-mile race for fully equipped touring cars, to be handicapped according to price. The racing machines will not be allowed to race out of their own weight classes—that is, a middle-weight car cannot enter an event for heavyweight cars, but must run in middleweight events only. In the free-for-all events, however, all classes will come together; there will be free-for-all races at one, five, ten, fifteen, thirty and 100 miles. A surprising innovation will be the free-for-all trials, in which the winner, in order to qualify for the prize, must attain a speed of at least two miles a minute, or 120 miles an hour. Following is the list of events:

One-mile middleweight championship (gasoline); one-mile heavyweight championship (gasoline); one-mile championship (steam); one-mile world's championship free-for-all for Dewar cup; one kilometer record trials for each weight and power class; one mile record trials for each weight and power class; two-miles-a-minute record trials free-for-all (the winner must equal or exceed 120 miles an hour); five mile middleweight championship (gasoline); five mile heavyweight championship (gasoline); five mile championship (steam); five mile free-for-all championship; ten mile middleweight championship (all powers); ten mile heavyweight championship (all powers); ten mile free-for-all championship; ten mile handicap, open to contestants who start in previous events; fifteen mile free-for-all championship; fifteen mile price handicap for American touring cars fully equipped; thirty mile free-for-all championship for American-built cars; one hundred mile free-for-all championship.

Automobilists in Havana, Cuba, are endeavoring to arrange for a 100-mile road race on lines similar to last year's Cuban race, to be held immediately before or immediately after the Florida races. It is planned to have the race start from the Cerro, a suburb of Havanna. Arroya Arepas. where last year's Cuban race started, is to be the turning point; but the return will be hy a different route, making a course of fifty miles without controls. There are a few hills and curves, but the road for the most part is said to be almost ideal for automobile racing. A stretch of seven or eight miles is in poor condition for high speed work, but the Cuban automobilists are endeavoring to have this remedied in time for the race. The superintendent of the garage of the West Indies Transportation Co., in Havana, states that he has had assurances from a number of owners of cars that took part in the Vanderhilt Cup race that they would bring their machines to Cuba if the arrangements for the race are satisfactorily completed.

LIVERYMEN ON THEIR DIGNITY.

Special Correspondence.

GRAND RAPIDS, Mich., Oct. 30.—The automobilists and the liverymen of this city are engaged in a merry little war. The liverymen are said to be losing patronage, both in the stabling of private horses and the renting of carriages. This has apparently caused some ill feeling on their part.

Until recently it was the custom for an automobile driver, when his machine broke down, to call for a livery team to haul it home or to garage. Now, the liverymen refuse to rent their teams for such a purpose. They will cheerfully furnish a carriage to convey the passengers back to town, but the automobile must remain where it is disabled, to be wet by a chance storm or be further disabled by vandals. When an auto breaks down now, a machine is sent from a garage to haul it back to town.

PHILADELPHIANS ACTIVE.

Local Dealers Promoting Races, Hill Climb, Economy Run and Show.

Special Correspondence.

PHILADELPHIA, Oct. 30.—The Philadelphia Automobile Dealers' Association is daily giving evidence of a virile activity which promises lots of sport for automobile owners hereabouts. The race meet scheduled for last Thursday at Point Breeze track, and which was postponed on account of rain till Wednesday of this week, is the first of a list of events which includes a hill climb, several runs, a one-day economy test, and, immediately after the New York shows, a local exhibition. The exhibition, unlike the shows of the last few years, will be managed by the association itself, and not through the medium of a paid manager. This was decided upon at the last meeting.

The race meet will embrace twelve events, including class races, a free-for-all, special races for Wintons, Ramblers. Maxwells, Reos and Elmores, a motorcycle exhibition and a five-mile match race.

The hill climb will, in all probability, be held on Thanksgiving day, over a course yet to be selected. The economy test will be held some Saturday or Sunday in December.

At its last meeting the association decided to petition the commissioners of Fairmount Park for permission to use the speedway on certain hours of certain days of the week. Since the advent of real autumn weather, with its raw. chilly winds, the speedway has been practically deserted by the horsemen, and little difficulty is anticipated by the association's managers in securing the desired permission.

THOMAS ENTRY FOR CUP RACE.

A racing car of more than 100-horse power will he entered in the 1906 Vanderbilt cup race by the E. R. Thomas Motor Co., of Buffalo. Work on the design for the machine is already under way. In its general features the racer will follow the lines of the new Thomas car, Model 31, although with the modifications made necessary by the high power. By making an early start it is expected that the car will be finished in time for a prolonged test.

WEBB JAY RETURNS TO CLEVELAND.

Special Correspondence.

CLEVELAND, Oct. 28.—After spending more than two months in a Buffalo hospital as the result of his almost fatal injuries received during the last Buffalo race meet, Webb Jay, driver of the famous *Whistling Billie,* has returned to his home in Cleveland. He was accompanied by Mrs. Jay and two physicians, and journeyed from Buffalo by boat. Jay is still very weak from the effects of the accident, and his physicians still try to keep him from thinking of it. Mrs. Jay says that her husband sometimes talks of the affair, but his recollection is very indistinct. Jay now has every chance of full recovery.

WANT NATIONAL HELP.

Delegates to Toledo Good Roads Convention Advocate Government Aid.

Special Correspondence.

TOLEDO, O., Oct., 28.—Although the national good roads convention which was held in this city this week was not so largely attended as had been anticipated, it resulted in the formation of the Lucas County Good Roads Association and it will likely further result in the building of good roads in this county.

The important feature of the convention, aside from the delivery of several stirring addresses by members of the national association, was the election of officers for the local organization which resulted in the selection of men who are deeply interested in the subject and who have pledged their support and energy in bringing about legislation for the building of good roads. This will mean much to Lucas county automobilists, for the roads of the county are notoriously bad, being worse than any others in the state with the possible exception of those of Wood county.

The officers elected are: President, A. L. Spitzer; first vice-president, C. W. Shoemaker; second vice-president, J. L. Pray; secretary, J. W. Flowers; treasurer, R. A. Bartley. Vice-presidents were elected for every township in the county, and at a meeting to be held next week vice-presidents will be selected from every ward in the city. A meeting of these officials will be held November 11, when further action will be taken toward preparing for the introduction of some good roads measures in the state legislature which meets this winter.

President Spitzer and Secretary Flowers were appointed a committee to attend the state convention to be held in Columbus early in January, when it is expected the state organization will take a hand in bringing about state legislation.

Members of the National Good Roads Association who were present and delivered addresses were: Col. W. H. Moore, president; Col. T. P. Rixey, lecturer for the National Association; Hon. Martin Dodge, ex-director in the office of Public Road Inquiries; Hon. Samuel Houston, commissioner of highways for Ohio, and Hon. W. Bradburn, consulting engineer for the National Association. Numerous addresses were delivered by local speakers, and, in addition to the convention, which lasted two days, the visiting delegates were shown existing roads by means of numerous automobile trips through the county.

The general sentiment expressed was that the national government should take action which would provide for the general improvement of the public highways, just as it has expended money in making various waterways navigable and in granting land to railroads and the like. The National Good Roads Association is now engaged in arousing sentiment in favor of such national legislation as well as state legislation. It is urging that the national government provide 25 per cent. of the money necessary to build the roads; that the respective states provide 25 per cent.; that the counties provide one-quarter, and that the property owners whose land abuts on the proposed road be taxed the remaining quarter.

Toledo automobilists did not take so much interest in the convention as was expected, although the attendance from outside points was very general. Although for the most part it was limited to Ohio, a number of prominent men were present, including automobilists who are heartily in sympathy with the work.

ECONOMY TEST NOW ON.

Nine Cars Competing in Six-Day Demonstration of Operative Cost.

Nine cars, including a ten-passenger gasoline wagonette, started in the six-days economy test promoted by the New York Motor Club, leaving Smith & Mabley's garage, New York, on Monday morning, October 30, for Philadelphia, a distance of ninety miles. The starters were:

No. 1, 24-horsepower Frayer-Miller air-cooled car; No. 2, 20-horsepower Marmon air-cooled car; No. 3, 16-horsepower Reo ten-passenger wagonette; No. 4, 8-horsepower Reo runabout; No. 5, 15-horsepower Compound; No. 6, 15-horsepower Compound; No. 7, 15-horsepower Compound; No. 8, 8-horsepower Oldsmobile; No. 9, 20-horsepower Wayne.

All the cars arrived at Philadelphia in good order Monday evening with the exception of Compound No. 5, which had mechanical troubles at New Brunswick, N. J. On Tuesday the return trip to New York was made. Wednesday's journey was from New York to Albany, 150 miles, the return trip being made on Thursday. The last outward run, to Southampton, Long Island, 101 miles, starts Friday, the return trip being made on Saturday.

The total distance mapped out for the test is 682 miles. Each car carries an observer appointed by some other contestant; all repairs made and all supplies taken on will be charged against the cars at fixed rates, and time occupied in making repairs will be charged according to the class of work done—the more skill required the higher the price set on the time. The rules call for this disqualification of cars exceeding the legal speed limit.

The Reo wagonette carried a full load of ten passengers, and arrived in Philadelphia in good condition. The performance of this machine is being watched with interest. Ezra T. Fitch, referee, accompanied the tourists in his steam car.

MICHIGAN REGISTRATIONS, 2,700.

Special Correspondence.

LANSING, MICH., Oct. 30.—The number of automobiles in Michigan has either been greatly overestimated or there are a large number of machine owners who have failed to comply with the state law requiring the registering of automobiles. The records in the office of the Secretary of State show only 2,700 automohiles registered, whereas it was estimated at the last session of the legislature that there were about 5,000 automobiles in the state. The state law fixes the registration fee at $2, which goes to the department of good roads. The state authorities are responsible for the enforcement of the statute; local authorities enforce it only at their pleasure.

LICENSE CLAUSE RESCINDED.

Special Correspondence.

KANSAS CITY, Oct. 28.—Automobile legislation in Kansas City has been tied into a hard knot by the action of the upper house of the city council, which amended, beyond recognition, the ordinance passed by the lower house. As the lower house is not likely to concur in the amendments, no legislation seems probable for a time.

In the first place, the Kansas City Automobile Club secured the elimination of the section providing for the examination and licensing of operators, at a fee of $1 per year. The greatest effort was concentrated on this section, and its defeat did away with the provision most objectionable to the autoists. The aldermen were agreed that it was as unfair to require the examination of every automobile operator as to test the ability of every person who drives a horse.

Another section stricken out was one providing for the revocation of an operator's license upon second conviction of violating the ordinance. Without the license section, this clause would, of course, have been useless.

Changes in speed limits were made as follows: Between the northern and western city limits, Eighteenth and Woodland, eight miles; on other streets and boulevards, twelve miles; on turning into intersecting streets, four miles.

Operators are required to sound their horns when approaching vehicles from the rear.

It takes a wise man to name every car he sees on the streets.

ILLINOIS CAPITAL AWAKE.

Springfield Park Board Lifts Ban on Autos. —Motor 'Bus Service Started.

Special Correspondence.

SPRINGFIELD, Ill., Oct. 28.—The last ban on automobiling in the capital of the state of Illinois was removed this week when the Springfield Pleasure Drive and Park Board rescinded the restrictions that for three years have prohibited autos from entering the parks of the city hetween the hours of 6 P. M. and 9 P. M.

Although the city that was once the home of Abraham Lincoln offered much opposition to the introduction of automobiles, both by the public and the authorities, it now proudly claims more automobile enthusiasts than any other city in the state, save Chicago. Credit for this change of sentiment is largely due to the Springfield Automobile Club, which is now composed of a large membership of influential citizens.

With the election of the progressive park ticket it was known that the auto enthusiasts had scored a victory, for the candidates on this ticket had promised that in the event of their election they would be friendly to automobiling, and they have kept their promise. The only restriction that now exists is that automobiles must not run at a higher speed than eight miles an hour through the parks.

Automobiling has had a remarkable growth in Springfield. At first the wealthy citizens bought only runabouts and cars of 7 to 10 horsepower, but in the last year these machines have been discarded for the largest and highest priced cars made, and it is now a rare occurrence to see a runabout on the streets.

In the last month the Automobile Rapid Transit Company has been incorporated and is operating six cars, each with a seating capacity of twenty, between the railroad stations and hotels. There is also talk on the part of the city officials of adopting an automobile police ambulance.

REO TEN-PASSENGER WAGONETTE STARTING FROM NEW YORK FOR PHILADELPHIA IN ECONOMY CONTEST.

An Italian motorcyclist, Alexander Anzani, recently rode 58 1-4 miles in one hour on ordinary roads, riding a 110-pound motorcycle.

HEADED FOR SNOW DRIFTS.

Transcontinentalists Nearing Drifts Among the Blue and Cascade Ranges.

Special Correspondence.

BOISE CITY, IDA., Oct. 25.—With snow falling fast and reports of deep drifts in the Blue and Cascade ranges of mountains, both of which must be crossed before we can run into Portland, the trip from this city westward promises to be interesting to say the least.

The run from Hailey to Boise City was a most picturesque one, the scenery being the finest in America, while the hills we climbed are by far the steepest yet encountered. The ranches are far apart, but automobilists or other travelers along this route are most welcome at every house.

The cooking at most of the ranch houses is excellent, but the hotel cooking along the route is abominable until Boise City is reached, where there is one of the finest hotels in the country.

During the last hundred miles across the plains we ran through an enormous herd of cattle. There were about 3,000 head, grazing in small droves. If you have ever passed half a dozen cows on the road, you will have some idea of what we had to contend with in getting the Mountaineer through this vast herd, many of the animals being the wildest kind of Rocky Mountain steers. The dust was terrific, and as a large part of the herd insisted on keeping in the middle of the narrow road in an effort to travel faster than the car, we looked as though we had come through a desert sand storm by the time we had outrun the entire drove.

Idaho is a stone state, and rocks of all sorts are found in the trail and on either side. Some of those in the middle of the road are so high and so firmly imbedded that it was necessary to build up around them in order to get the car over them. We hit one big fellow late Monday night and tore off the whole muffler.

Boise City boasts of several automobiles, "Jim" Taylor, the leading bicycle dealer and automobilist, coming out to meet us in his Franklin. Taylor is the automobile authority for the state and is working hard to start an automobile boom—an uphill task in so great a horse center as Boise City.

We purchased the heaviest sweaters we could get, heavy waterproof shoes that lace up to the knee, cowboy caps and winter gloves, for westward from Boise we will have winter weather until the Willamette valley is reached. We have been told that it will be impossible to cross in an automobile, but have been informed in the same breath that six, eight and ten-horse freight outfits are driven through all winter, and we are confident we can take an automobile over any road that a freighter can get through with his horses.

PERCY F. MEGARGEL.

FRANK STEARNS INJURED.

Frank B. Stearns, president of the F. B. Stearns Company, was seriously injured recently by the collision of his car with a team of horses near Willoughby, O. In company with his chief draftsman, J. G. Sterling, he was on a night trip to Buffalo, testing one of the new 40-horsepower cars. Mr. Stearns' version of the affair is that his speedometer showed about twenty miles an hour and he was on a perfectly straight road. His car was brilliantly illuminated with six lamps, three of them large acetylene beadlights, and the driver of the team, who was a garden farmer taking a load of produce to the city, afterward admitted that he saw the car for half a mile or more. He did not turn out, according to Mr. Stearns, who was forced to pull off at one side. Just as he was passing them, one of the horses shied directly in front of the car, and was struck on the front legs, breaking them. To avoid running into the wagon, Mr. Stearns threw the machine sharply to the right, up over some railroad tracks and into a bank, where the car capsized. Mr. Stearns was thrown under the machine in such a manner that his spine was injured, though no bones were broken. He will be kept perfectly quiet for several weeks. The man whose horses caused the accident put in a claim for damages and was promptly paid by the Stearns company.

CHICAGO AFTER SPEEDERS.

Mayor Dunne Issues a Code of Rules and Clubs Volunteer Services.

Special Correspondence.

CHICAGO, Oct. 30.—A new code of rules and regulations for automobile drivers has been promulgated by Mayor Dunne as a result of his investigation of the complaints against reckless driving in the streets. The code, which is to serve as a guide for the police in their construction of the ordinances is as follows:

1. The right of way belongs to the pedestrians
2. Chauffeurs must exercise care.
3. Must run slowly at night.
4. Must slow up at crossings and while driving downtown.
5. Must always keep to the right.
6. Must not attempt to pass moving street cars.
7. Lights must illuminate numbers.
8. Must light up at dusk.

A list of seventy-eight owners of cars who have violated the ordinances has been prepared by the police and the mayor says he will have them appear either before himself or the board of automobile examiners to see where the trouble lies. It is expected that many licenses will be revoked. An "auto squad" will be made up of detectives from central headquarters for the purpose of catching those who exceed the speed limit, and several members of the Chicago Automobile Club have offered their services to the chief. They will carry the detectives in their cars while they patrol the streets on the lookout for offenders. The Austin Automobile Club has also joined in the crusade and adopted resolutions promising co-operation with the mayor and chief of police in putting down the speed nuisance.

EXPORTS FOR NINE MONTHS.

Exports of automobiles and parts of automobiles from the United States for nine months ending with September, 1905, aggregated $2,235,633 in value, representing an increase of $789,647 over the same period in 1904.

The exports for the single month of September, 1905, reached a value of $194,499, as compared with $123,487 in September a year ago.

The dominating principle in the Brownlow-Latimer bill for national aid to highway improvement is that good roads are state and national necessities, therefore their construction is a joint state and national obligation; that good roads being of prime importance to further state and national development and progress, it is necessary that road building be systematized, that it be done on approved plans, and that the roads constructed be of a quality that is the best. Everybody is interested in better roads, whether living in the city or in the country.

OWNER'S CONSENT REQUIRED.

Proposed Washington Regulation Aimed at Irresponsible Chauffeurs.

Special Correspondence.

WASHINGTON, Oct. 30.—In a communication to W. C. Duvall, president of the newly organized Washington Automobile Club, Commissioner West, speaking for the board of commissioners of the District of Columbia, stated last week that in the future the board would submit proposed amendments to existing automobile regulations to the club in order to obtain the views of those most directly interested in such regulations. It was the board's purpose, he wrote, to allow members of the club and unattached automobilists to be heard at length before any new legislation was put into force.

H. C. Hunter, a member of the club, had asked the commissioners to adopt a new regulation, making it a misdemeanor for any chauffeur or other person to drive or operate any automobile or apply or set in motion the power that propels any motor vehicle upon any street or in any garage or other place where motor vehicles are hired, stored, or sold, in the absence of the owner of such motor vehicle and without his consent in writing. Commissioner West thought the language of this rule rather sweeping, and sent it to President Duvall, with a request that the club present its views on the subject. A number of lawyers connected with the club got together and drafted a substitute as follows:

"Any person who operates a car on the streets in the absence of the owner and without the written consent of the latter shall be guilty of a misdemeanor, and upon conviction shall be fined not less than $100 or more than $500, or imprisoned for one year, or both. Nothing in the above provision shall be construed to prohibit the delivery of automobiles to points desired by the owner, or the return of the machines from any point to the garage where same are stored, by a regularly licensed operator connected with said garage, provided that such delivery or return shall be accomplished by the shortest practicable route."

President Duvall also suggested to the commissioners the desirability of enacting additional police regulations to put a stop to the growing practice of throwing stones at passing automobilists, throwing broken glass into the streets, and pilfering lamps and other fixtures on exposed automobiles.

LABOR UNION TO RUN STAGES.

Special Correspondence.

GOSHEN, IND., Oct. 28.—If the announced project of the Amalgamated Association of Street Railway Employees is carried out, an automobile stage line will be started between South Bend, Mishawaka, Elkhart, Goshen, and probably Niles, Mich., to compete with the Indiana Railway Company, which is said to have been on the unfair list of organized labor since the strike two years ago.

This venture was determined upon by the executive board which met recently in Chicago, and negotiations were at once started for the investment of $20,000 in 'buses and trailers to be operated as soon as possible. The profits of the business will go into an automobile fund, and more machines will be purchased to strengthen the national organization when it enters upon a fight against traction corporations.

Next year the Long Island farmers will get out an injunction probably against those newspapers that try to "protect" them from the automobile enthusiasts.—New York *Telegraph*.

ERECTING SIGN-BOARDS.

Syracuse A. C. Joins Other New York Clubs in Useful Public Work.

Special Correspondence.

SYRACUSE, Oct. 30.—Following the recommendation made at the recent meeting of the board of directors of the New York State Automobile Association at Rochester, the Automobile Club of Syracuse already has a movement under way to erect sign-boards for the benefit of automobilists about this part of the state, which is in woful need of them; in fact, notoriously so.

The work starts auspiciously. H. H. Franklin shows his practical interest by heading the list of donations with $100. Some other donations have been received and it is expected that everybody will get in line and help along the work which is for the good of all. Sign-boards like those erected by the Rochester A. C. will be used. Dangerous places will also be indicated.

In the erection of the sign-boards the local club is to co-operate with the clubs in Rochester, Watertown, Utica and Binghamton, so that the roads between these places will be thoroughly placarded.

The Buffalo club was the pioneer in this movement, being joined by the Rochester club. Now the Syracuse club, which is a growing and prosperous one as well as active in whatever it undertakes, joins in the movement.

Syracuse automobilists who are acquainted with New England and know of the public convenience occasioned there by an adequate system of sign-boards, are particularly active in this movement.

In a few days the Syracuse club will be in receipt of maps showing the highways planned by the county officials and the roads to be built by the state, with a full explanation of the amendment to the state constitution for the improvemcnt of highways, to be voted on November 7.

Local automobilists are much interested in the cup race proposcd for next year by the Rochester A. C. Rochester autoists have a course of thirty miles entirely over improved highways, equal, it is claimed, to the Vanderbilt cup course on Long Island.

VERMONT CLUB'S ANNUAL MEETING.

Special Correspondence.

WATERBURY, VT.—Nearly forty members of the Vermont Automobile Club attended the adjourned annual meeting at Waterbury, on October 26. Many of the members arrived in their automobiles. The meeting was called to order by Dr. Lewis Hazen, of Burlington. The trcasurer's report showed $148.27 on hand. The report of the secretary gave the membership as 103.

Officers elected for the following year were: President, H. W. Hall, of Burlington; first vice-president, J. M. Boutwell, Montpelier; second vice-president, J. B. Manley. Brattleboro; secretary and treasurer, John W. Gordon, Barre.

The president appointed a committee to nominate the remaining officers to be acted upon at the next meeting of the club.

A banquet was served at the hotel at 2:30 P. M.

POOR OIL IN KANSAS CITY.

Special Correspondence.

KANSAS CITY, Oct. 28.—The Kansas City A. C. has asked George Creel, local coal oil inspector, to ascertain whether the law under which he acts cannot be made to apply also to the inspection of gasoline. The autoists assert that there is too much water in the gasoline they buy.

Mr. Creel is satisfied that the law applies to gasoline, and will make an effort to get an early decision in the courts.

As a result of its campaign for better oil, the automobile club has secured the moral support of many persons who are suffering from poor oil.

AUTO BOAT CLUB FORMING.

The Motor Boat Club of Amcrica is to he the name of a new organization to be formed in New York. This decision was reached at a meeting of about thirty auto boat builders and owners held at the Hotel Manhattan, New York, the night of October 25. Charles P. Tower, of the Larchmont Yacht Club, was chosen temporary chairman, and Hugh S. Gambel, secretary of the National Association of Engine and Boat Manufacturers, acted as secretary. At the next meeting, to be held within two weeks, permanent officers will be elected. Communications were received from more than sixty enthusiasts, signifying their intention of enrolling as charter members.

NEWS NOTES OF THE CLUBS.

CHICAGO.—Secrctary Gorham, of the Chicago A. C., intends to go to New York this week for the purpose of obtaining a long lease on the property which the club now occupies on Michigan avenue. Mrs. Hetty Green owns the property and Mr. Gorham has already conferred with her on the subject, but was not able to bring the matter to a conclusion during his last visit to New York. Should he succeed in obtaining the lease it is the intention of the club to erect a new clubhouse on the site, and to make it the most complete of its kind in the country.

MINNEAPOLIS.—The Minneapolis A. C. has undertaken the task of establishing a class for chauffeurs and owncrs of automobiles who desire to run their own machines. The class will meet Wednesday evenings from October to April, and the instruction will be eminently practical.

NEW YORK.—A circular letter has been sent out to automobilists by the Good Roads Committee of the Automobile Club of America, calling their attention to thc good roads amendment which will come up for adoption on Election Day, and requesting everyone to vote "yes" on the amendment. The carrying through of the amendment will mean the expenditure by the State of $50,000,000 in the next ten years for the betterment of the public highways. The letter invited motorists to contribute $10 each to carry on the campaign; the money to bc forwarded to A. R. Shattuck, chairman of the Good Roads Committee.

WASHINGTON.—The A. C. of Washington has decided to give up its quarters in the Villa Flora clubhouse on the Brightwood road and to establish itself in the city. The club has sccured a fine suite of rooms in the Colonial Hotel, at the corner of Fifteenth and H streets, and these rooms will be fitted up in good style. There will be plenty of lounging room, and as the new quarters will be located in the heart of the city, it is expected they will be well filled all the time. The membcrship is growing rapidly.

MILWAUKEE.—At a rccent meeting of the Milwaukcc A. C. thc membcrs elected the following officers: President, S. M. Becker; first vice-president, Dr. L. Fuldner; second vice-president, F. G. Curtis; secretary, James T. Drought; treasurer, W. H. Pipkorn. At the same meeting it was decided by the members to secure permanent club quarters.

EARLVILLE, ILL.—The Earlville A. C. has been organized with a membership of thirteen. George Hyde was elected president, and a committee was appointed to draft by-laws.

GARDEN SHOW PLANS.

Appear in Attractive Form This Year—Fine Accessories Exhibits.

Floor plans for the automobile show, to bc hcld during the week of January 13 to 20 in Madison Square Garden, New York, by the Association of Licensed Automobile Manufacturers, have been issued in an attractive form. The plans are drawn on a large scale and are bound into a cover of heavy paper, bearing a design in black and gold. A pamphlet containing the rules and regulations governing the show has also been scnt out.

Great care will be taken to see that free admission is not given to persons not entitled to it. Each properly accredited employee of an exhibitor will be given a button or badge as a pass; in case the badge is lost, a new one will be provided, at a cost of $5. Dealers will be admitted up to 11 A. M. each day upon signing a registry book and leaving signed business cards; the visits may be repeated as often as desired, but the book must be signed each time, and the signature on the card will be compared with that entered in the book as a check against attempts to gain admission by those who have no right to the privilege. There will be no coupon books.

At the last meeting of the show committee it was announced that more than the space available for exhibitions has already been applied for, and applications are still coming in. The members of the show committee are George Pope, chairman; M. I. Brick, C. R. Mabley and M. L. Downs.

Every square foot of space reserved by the Motor and Accessory Manufacturers at the Madison Square Garden and 69th Regiment Armory automobile shows in New York and the Coliseum show in Chicago has been bought by members of the M. & A. M., according to H. W. Chapin, of Syracuse, president of the organization. The Motor and Accessory Manufacturers have rcserved from 10,000 to 12,000 square feet of spacc in the Garden exhibition of the Association of Licensed Automobilc Manufacturers; engagcd nearly 10,000 square feet in the Armory show of the Automobile Club of America, and from 9,500 to 10,000 feet in the Coliseum show. Mr. Chapin asserts that the display that is in preparation by the accessorics manufacturers will be a surprise to automobile enthusiasts. The organization includes in its membcrship 119 manufacturers of various essentials of automobiles and expects to take in ten more mcmbers within a few days. It plans a big representation at the forthcoming exhibitions. President Chapin will visit New York this week for the purpose of alloting spaces to the members.

EXCURSION TO PARIS SHOW.

An excursion to the Paris automobile salon, starting from New York or Boston late in November, is being planned by E. R. Thomas, of the E. R. Thomas Motor Co., Buffalo. Arrangements have been made with steamship companies and hotels, so that the necessary expense of the trip will not exceed $225. per capita. Ten days will be spent in Paris, and from there several side trips will be made to automobile manufactories, with a view to giving the visitors an idca of French automobile builders' methods. The salon opens December 8. The party will return in time to spend Christmas at home. All wbo are interested in automobiles in any way are at liberty to take advantage of the rates secured.

QUICK GROWTH OF PITTSBURG TRADE.

Seven New Manufacturing and Selling Companies Organized and Started in Business During the Last Twelvemonth—Total Sales of Autos for 1905 Aggregate $1,200,000.

Special Correspondence.

PITTSBURG, PA., Oct. 30.—As soon as a line of enterprise begins to show good profits there are plenty of men and an abundance of capital ready to go into it. This has been the case with the automobile business in Pittsburg, where the developments of the past year show conclusively that automobiling is away beyond the initial or doubtful stage and that the hundreds of new devotees are expected to be in the market for new and better machines. Seven new firms have been organized in Pittsburg within the last twelve months to meet this increasing trade and fully $500,000 has been invested by them in the automobile business.

Four of these firms are well established and have been doing business for months. Two have fine garages in the automobile quarter in the East End. One has a factory now in operation. The three formed most recently are getting their plans matured rapidly for extensive operations next spring. All these concerns are backed by men of capital and influence and their outlook for business in the near future is very bright.

The automobile sales in Pittsburg for this season aggregate more than $1,200,000, and it is freely predicted that next year $2,000,000 worth of autos will be purchased in this city.

The first of the seven companies to enter the field within the twelvemonth was the Hiland Automobile Company which started in business not quite a year ago. Its officers are Dr. John A. Hawkins, president; Dr. George A. Urling, treasurer and F. B. Saupp, secretary. The company built a commodious garage in Beatty street above Baum street, East End, and has developed a good trade in the Autocar. It has just bought a site 100 by 150 feet in Center avenue, East End, only a short distance from the Pittsburg Automobile Club house, on which it will erect a handsome two-story brick garage. The site and building represent an investment of $40,000. The building, for which plans will be drawn at once, will be 80 by 125 feet. It will be finished by February 1. The Hiland company will be the first automobile company in the city to own its land and building. All the other new garages have been built on leased ground. At the time of its organization the Hiland Company leased a site at Baum and Beatty streets. When the new building is completed this lease, together with the building on the lot, will be sold. The Hiland has hitherto sold only the Autocar, but this fall it has secured the agencies for the Buick and the Peerless and proposes to push its business next year very much harder.

The Liberty Automobile Company, close neighbor to the Hiland, got under way last March. Its new garage is at 138-140 Beatty street, almost across the street from the new club house of the Pittsburg Automobile Club. It handles the National, Acme and Ford cars and its sales have been ahead of its expectations. A large addition to the company's quarters is projected for the near future. The officers are: President, Dr. T. S. Gamble; secretary and treasurer, William G. Hasley.

The Park Auto Company made its appearance last July. It was organized by M. J. Dain, president; Henry Terheyden, vice-president, and David R. Torrence, secretary and treasurer. The capital was $20,000. The company opened offices in the Park building and began operating touring 'buses for seeing the parks of Pittsburg and the immense manufacturing plants along the Monongahela river. Two 'buses of 15-horsepower each were bought from the Auto Car Equipment Company, of Buffalo. These have run more than 1,500 miles and will continue running till November 15, when they will be taken off the regular route and used for theater purposes.

The Pittsburg Motor Vehicle Company entered the local field during the summer. It was incorporated with a capital of $200,000 by W. R. Kuhn, R. B. Ward and John R. Rush. The company has built a small factory in Summerlea street, East End, and purposes manufacturing delivery cars to carry a load of from 1,000 to 1,500 pounds. Thomas M. Pfarr is in charge of the factory. The company expects to build a large plant to employ at least fifty men in the spring. Its delivery car is an electric vehicle designed by D. L. Brown, manager of the electric department of the Standard Automobile Company. The parts will be brought from the supply houses and assembled at the factory.

The Pittsburg Automobile Company was formed about three months ago by James Francis Burke, attorney for the Automobile Club of Pittsburg; E. T. Brockman, an electrical engineer; C. L. Roberts, S. R. Ireland and H. C. Ward and a charter was secured. The company is to manufacture touring cars, probably embodying the invention of a man in Hartford, Conn., and in a plant to be built here. A thorough and satisfactory test of the car was made recently in New York before the officers of the company. No definite location has been announced.

The American Motor Company was lately incorporated by A. P. Shumaker, Charles R. Porter and Harry T. Porter. Mr. Shumaker is general manager and has opened offices in the Park building. The company expects to do a combination storage and sales business and will probably locate in Diamond street downtown, where it expects to erect a modern garage.

L. G. Martin, who has worked up a fine trade in automobiles and storage in Oakland, out toward the East End, has leased a large site 165 feet east of Boquet street on the north side of Forbes street. He will have plans drawn at once for a two-story brick garage to cost $7,000. Mr. Martin will retain his present place of business at 3994 Forbes street and will use the new building for a machine and supply shop. He handles the Rambler.

The latest concern in the field is the Central Automobile Company, formed by Edward G. Mooney and Edward Scely. Plans have not yet been matured but the company has gone so far as to employ an architect to prepare plans for an $18 000 garage to be built in Broad street, East End. The company will have at least two good agencies in the spring.

In addition to the concerns mentioned the business of the older companies has outgrown their quarters the last year in several cases. Banker Brothers Company has nearly completed a two-story addition to its East End plant, which will give it double the present room. Extensive improvements have also been made to the plants of the Keystone Automobile Company and the Standard Automobile Company. The Atlas Automobile Company is having plans drawn for a $30,000 garage which it will build in East Liberty. King & Larimer are also contemplating the erection of a modern garage this winter.

CHANGES IN PERSONNEL OF BOSTON HOUSES.

Entire Change in Situation Brought About by Entry of Branch Managers into Business for Themselves, Selections of New Lines of Cars and Removals to New Quarters.

Special Correspondence.

BOSTON, Oct. 30.—The opening of the 1906 selling season in Boston will see more trade changes in automobile circles than have occurred before since the business began. Men who for years have been associated with certain lines have branched out for themselves and are bringing in new makes of cars that have not before appeared on the Boston market; their places with the old branches or agencies have been filled by new men; agencies have been transferred, lines have been increased and, taken altogether, there has been a shake-up that puts an entirely new aspect upon the situation. These changes have been going on all summer, and it is thought that now they have been about completed. The different dealers, old and new, are settling down and preparing for what they think will be the busiest season they have yet experienced.

One of the most interesting features of the situation is the entrance of several well-known former branch managers into the field on their own account. A. E. Morrison, who was long identified with the Peerless Company in Boston, announced last week that the Morrison-Tyler Motor Company, with an office and salesroom in the newer automobile section on upper Boylston street, will handle the Rainier and the Maxwell cars. The Ranier is almost a new car in Boston but the Maxwell is well known, having been handled by the Randliff Motor Car Company. Last week the Harry Fosdick Company, which is composed of Harry Fosdick, formerly the Winton branch manager, and J. A. Dowling, formerly of Dowling & Maguire, agents for the Pierce, announced the opening of its new garage on Stanhope street, and that it will handle the Studebaker and Fiat cars. George H. Lowe, until recently manager of the White branch, has not yet made public his new venture, but it is said that he has under consideration a line of gasoline cars. W. J. Foss, who resigned as manager of the Pope Manufacturing Company branch, has gone to Philadelphia, where he and A. E. Hughes, formerly Pope manager in Providence, are to handle the Pierce and Cadillac.

The places vacated by branch managers have, as a rule, been filled by promotion. Thus J. L. Snow, head salesman for the Peerless under Mr. Morrison, has been promoted to branch manager, and has with him R. R. Ross, formerly with Alvan T. Fuller, agent for the Packard. Mr. Fosdick's place was taken by H. A. Hinchcliffe, who came from the New York branch, where he was assistant to Percy Owen. Mr. Dowling's retirement from Dowling & Maguire leaves Massachusetts territory with Mr. Maguire, while Mr. Dowling retains other New England states. Mr. Lowe was succeeded by J. A. Hathaway, his head salesman, and W. J. Foss is succeeded by Freeman Hinckley, lately assistant manager, and Harry E. Marvel is made assistant manager. J. A. MacAlman continues as manager of the Locomobile Company of America, W. W. Burke, as manager for the Columbia Vehicle Company, and E. A. Gilmore as manager for the Rambler store.

Among the agents the changes have been less numerous than among the managers.

One of the most recent to be announced is that the Randliff Motor Car Company will handle the Frayer-Miller in addition to the Stoddard-Dayton and the Panhard, and will within a few weeks occupy new quarters on Boylston street, near the Massachusetts Automobile Club. Another change is the transfer of the Olds interests here to the Adams-Sutton Motor Company. Walter O. Adams, the president, has been foreign agency director of the Olds Company at Lansing, and David Sutton, the secretary and treasurer, has been associated with the Canadian Bridge Company. This company will have quarters in the new Motor Mart that is nearing completion in Park square. The Olds agency has heretofore been on Columbus avenue, near the Pope building.

The completion of the Motor Mart will also be the signal for the moving of another Columbus avenue agency, which is next door to that of the Olds. Alvan T. Fuller has taken a large section of the Mart, and will use it in exploiting the Packard and the Cadillac. He will also pay special attention to the repair business, and is fitting up an elaborate repair shop. Another concern that is to be located in the Motor Mart is the Napier Company of America, now on Boylston street. A. R. Bangs, who last season opened a salesroom on Boylston street, for the Franklin, Baker and Darracq, will remain in the same quarters, but he has opened a new garage in the Back Bay, to take the place of the Beacon Garage, which was burned last May. Mr. Bangs completed arrangements last week by which he will continue to handle the same cars as heretofore.

Although other agents may move when the Motor Mart is completed, either into that building or into stores vacated by other dealers, the agencies remain in the same hands up to date as follows: Charles S. Henshaw, the Thomas; F. E. Randall, Stevens-Duryea; the Reed-Underhill Company, Knox and Stearns; Linscott Motor Company, National and Reo; P. A. Williams, Jr., Ford and Marion; W. E. Eldredge, the Buick; Ralph Lewis, the Ariel; Benjamin Smith, the Berkshire; G. J. Dunham, Royal Tourist; George M. Brown, Clement-Bayard and Apperson; Boston Motor Car Company, Acme; E. S. Breed, the Haynes; Fred H. Adams, Atlas motor truck; F. E. Wing Motor Car Company, the Queen. In the absence of any announcement to the contrary, it is expected that several other cars will be handled by the same parties that had them last year.

From present indications there will be more active work in developing Boston and New England as a market for high-priced foreign cars this year than in the past. New agencies are being placed and the old ones, with one exception, are to be maintained. The exception is the Decauville Company, which placed a branch in Boston last year, and conducted a lively campaign for business. The agency was withdrawn this fall. A. R. Bangs, who has the Darracq, says that since the Vanderbilt race he has had a number of customers for this car; and the announcement that the Fosdick Company is to handle the Fiat has brought many persons to that garage. Boston, heretofore, has not been considered the best of territory for foreign cars. It was claimed that those who wished foreign machines preferred to go to New York for them. Local agents believe, however, that this class of purchasers can be induced to trade at home, when they know that the cars are sold here.

The outside of a chain doesn't need oil; where lubricant is needed is in the rivet bearings. Squirting oil all over the outside of a chain is a waste of oil and energy.

DETROIT AMALGAMATION.

Cadillac Automobile Company and Leland & Faulconer Reorganize Under One Name.

Special Correspondence.

DETROIT, Oct. 30.—Cadillac Motor Car Company is the name by which the Cadillac Automobile Company and the Leland & Faulconer Manufacturing Company, both of Detroit, will hereafter be known. The amalgamation of these two companies, whose business interests have been so closely related in the past, was completed last Friday when articles of incorporation were filed in the office of County Clerk Himes, in Detroit.

Greater economy in conducting the business is given as the chief reason for the consolidation. The Leland & Faulconer Company manufactured gas engines and automobile parts and has furnished engines and parts for the Cadillac company nearly all the time the latter has been in operation. Henry M. Leland, executive head of the Leland & Faulconer Company, has also been manager of the Cadillac automobile works. The manufacture of parts and machines will now be under one management and when the new building of the Cadillac company is completed, will be in one plant.

The stockholders of the Leland & Faulconer Company will become stockholders in the Cadillac Motor Car Company, and the old stockholders of the Cadillac Automobile Company will retain their shares in the new concern.

The capital stock of the Cadillac Motor Car Company is $1,500,000, divided into 15,000 shares of $100 each. Clarence A. Black, Lem W. Bowen and Henry M. Leland are named as the three trustees of all the stock. The old Cadillac Company was capitalized at $300,000 and the Leland & Faulconer Company at $175,000.

It is thought that Mr. Leland will be executive head of the new company, although officers have not yet been elected. The officers of the old Calillac company were: President, Clarence A. Black; vice-president, A. E. F. White; secretary, Lem W. Bowen; treasurer, William H. Murphy. The officers of the Leland & Faulconer Company were: President, R. C. Faulconer; secretary, C. A. Strelinger; treasurer, W. C. Leland; general manager, Henry M. Leland.

RIVALRY FOR AGENCIES.

Interesting Changes in Lines Occurring Among Indianapolis Dealers.

Special Correspondence.

INDIANAPOLIS, Oct. 30.—A brisk rivalry for agencies, which has caused some ill feeling is on in Indianapolis, and interesting developments are expected before all of the agencies for 1906 have been placed.

It is thought that there will be much shifting of agencies for next season. There was some surprise when it was announced a few days ago that the Fisher Automobile Company, one of the oldest in the city, had decided to relinquish the agencies for the Pope-Toledo, Winton and Oldsmobile and take a line of unlicensed cars, but other surprises are said to be in store.

The Winton agency has been placed with the Indiana Automobile Company, while the others, it is understood, have not yet been definitely settled. The Indiana Automobile Company has carried the Knox Autocar, Cadillac, Franklin and Stevens-Duryea this season, but has not made new contracts for all of these cars next year.

The Fisher company will carry the Maxwell, Premier, National and Stoddard-Dayton, which has caused a shifting among dealers who formerly held those lines. The Elston Automobile Company had the 1905 agency for the Maxwell. Next season the D. B. Sullivan Company will carry nothing but the 1906 model of the Queen.

It is believed that the next two weeks will see an adjustment of agencies for 1906. The Elston company will probably handle the new American in addition to the Gale and Moline.

AGENTS' COMMISSIONS.

Must Be Paid on All Sales to Residents in an Agent's Territory.

Special Correspondence.

BOSTON, Oct. 30.—A decision of much importance to automobile agents has been handed down by the full bench of the Supreme Court of Massachusetts. It is in effect that agents for automobiles having exclusive territory are entitled to a commission on all sales made within their territory, whether the sales in question are made by themselves or by others.

This decision is the result of a suit brought by Dr. Roy M. Garfield of Worcester against the Peerless Motor Car Company. The evidence showed that Garfield was the agent for the company in Worcester and had exclusive territory for the sale of the Peerless cars in Worcester and vicinity. He claimed that he was entitled to the commissions for two cars sold at the Boston branch of the company to persons residing within his territory. At the trial Dr. Garfield introduced evidence to show that although the contract did not especially provide for such conditions, he was entitled to the commissions by the usage of the trade. To the admission of this evidence, and to the refusal of the presiding judge to give certain rulings, counsel for the company took exceptions, upon which the case was carried to the upper court.

The verdict in the lower court was for the plaintiff and he was awarded $840 damages, the full amount of the commission claimed by him and interest. The company contended that the place where the sales were made and not the residence of the buyer governed the payment of the commissions. The full bench over-ruled the exceptions of the defendant and affirmed the verdict for the plaintiff.

RECENT INCORPORATIONS.

Strang Electro-Gasoline Car Co., Kansas City, Mo.; capital, $100,000.

Automobile Speedway Co. of New Jersey; capital, $100,000. Incorporators, G. J. Waters, G. Rogers, A. M. Bowling, W. P. Whyte, Jr., L. B. Dailey.

Turbine Locomotive and Car Co., Newark, N. J.; to manufacture motor vehicles; capital, $500,000. Incorporators, Stacey Wilson, Robert J. Keith, Albert G. Mabee.

Standard Automobile Co., of Cleveland, O.; to handle automobiles and parts; capital, $10,000. Incorporators, G. H. Smith, F. B. Williams, T. H. Hogsett M. G. McAlleman and G. H. Kelly.

Technical Automobile School of New England; to conduct an automobile school; capital, $5,000. President, C. P. Buker; treasurer, H. M. Huse, both of Boston; clerk, G. M. Faulkner, of Cambridge, Mass.

The Muncie Auto Parts Co., Muncie, Ind.; capital, $15,000. Directors, H. L. Warner, C. T. Quale, C. R. Hathaway and H. L. Hooke.

Thirty-Five Per Cent. Automobile Supply Co., New York; manufacture automobile sundries; capital, $40,000. Incorporators, James C. Nichols, New Rochelle, N. Y.; Harry E. Nichols and Albert B. Norwalk, New York.

Columbus Auto Exchange and Storage Co., New York; capital. $1,000. Directors, M. Brown and L. Brown, of Boston; S. Brown, of New York.

Automobile Buyers' Association, New York; capital $10,000. Directors: S. C. Meyer, E. C. Harding, C. E. Mundy, New York.

Manufacturers' Motor Car Company, New York; capital $50,000. Directors: H. L. Baer, R. B. Nettleton, L. M. Ellis, New York.

Troy Garage Company. Troy, N. Y.; capital $500. Incorporators: William H. Dennin, Charles C. Kelley and Timothy J. Quillinan, all of Troy, N. Y.

Auto Exchange of Albany, Albany, N. Y.; capital $500. Incorporators: William H. Dennin, Charles C. Kelley and Timothy J. Quillinan, all of Troy, N. Y.

Automobile Sales Company, incorporated in Massachusetts, to deal in automobiles; capital $10,000. President, Lorenzo D. Bates, Brockton, Mass.; treasurer, F. S. Macalaster, Boston, Mass.; clerk, A. J. Tingley, Cambridge, Mass.

Brewster Automobile Co. New York; capital $10,000. Incorporators: Cairn C. Downey, H. M. Duncan, George M. White, R. S. Brewster, M. A. Brewster.

Quincy Automobile Company, Quincy, Ill.; capital $50,000; manufacturing automobiles and parts. Incorporators: J. W. Cassidy, Harvey Chatten, W. H. Covert.

Independent Auto Company, Limited, New Orleans, La.; capital $15,000. Directors: James Garvey, H. L. Stoutz, Richard Bayly and St. Clair Adams.

Detroit Auto-Marine Company, Detroit, Mich.; capital $75.000.

Hutchison Electric Horn Company, Ossining, N. Y.; capital $20,000. Incorporators: Paul M. Pierson, Ossining; Miller Reese Hutchison, and William M. Williams, New York.

Southwestern Transit Company, Guthrie, Mo.; to operate an automobile line; capital, $35,000. Incorporators: Ernest R. Ames, Shirley A. Bradish and Thomas J. Lowe.

G. H. Curtiss Manufacturing Company, Hammondsport, N. Y. (motor vehicles); capital, $40,000. Directors: G. H. Curtiss, A. G. Pratt and R. G. Hall, Hammondsport.

CURTISS NOT TO MOVE.

Special Correspondence.

ROCHESTER, N. Y., Oct. 30.—Pressure brought by business men at Hammondsport. N. Y., has resulted in the determination of G. H. Curtiss, of the G. H. Curtiss Manufacturing Company, to keep the plant at Hammondsport instead of removing it to Rochester as was the intention a short time ago.

Mr. Curtiss some weeks ago entered into an incorporation with Frank Bouton and other Rochester promoters but did not sign the contract to remove his factory to Rochester, nor other papers necessary for an ironbound contract. Last week he went to Albany, where he filed papers of incorporation of the G. H. Curtiss Manufacturing Company. The capital stock is $100,000 and the directors are G. H. Curtiss, Judge Monroe Wheeler, L. D. Masson, A. G. Pratt and G. Ray Hall.

The Curtiss company manufactures the Curtiss motorcycle. An auto boat is to be added to the output next season.

News and Trade Miscellany.

More than one hundred Syracusans expect to attend the two big automobile shows to be held simultaneously in New York during the week of January 13 to 20.

The board of directors of the New York State Automobile Association passed a resolution at its recent meeting in Rochester favoring the proposed $50,000,000 bond issue for good roads in New York State and instructing the secretary to formulate a plan and communicate it to the club secretaries urging that all motorists exert their influence on election day.

The Franklin Manufacturing Company sent no cars to the New York Motor Club economy test, it being a member of the Manufacturers' National Association of Automobiles whose directors opposed any more contests this year. The concern had been testing cars with the idea of entering.

According to the statement of Jacob Gerold, a Toledo cafe proprietor, the Anheuser-Busch Brewing Company, of St. Louis, Mo., will spend $25,000 in building an automobile clubhouse about three miles west of Toledo. Mr. Gerold states that he has been engaged as manager and that the clubhouse will be excellently appointed for dinners and for caring for autoists. The site selected is on a drive especially popular among Toledo automobilists.

One of the residents of Long Island who has benefited in a substantial manner from the Vanderbilt cup race is J. Wicks, whose farm, near Mineola, is on the course used for the big road race. Wicks sold so many privileges for stands and booths that he decided to invest part of the money so earned in an automobile; accordingly, he purchased a 30-horsepower Pope-Toledo touring car, with complete equipment. It is his first car.

Mrs. A. R. Torrance, of Pittsburg, Pa., who has been spending some time in Pasadena, Cal., is at the head of a movement to put in operation a "Seeing Pasadena" automobile service, and has ordered two large cars, each with a seating capacity of twenty-four persons, which it is expected will be in operation by the first of the new year. The cars will carry the familiar megaphone man, who will point out the various show places of the city to the tourists.

Ground has been broken in Wilkes Barre, Pa., for the erection of buildings to be occupied by the Matheson Motor Car Company, which has decided to remove its plant from Holyoke, Mass. The company expects to be in its new quarters by January 1, 1906, and has increased its capital stock from $600,000 to $1,100,000. The Matheson company will devote most of its time to the manufacture of commercial cars, having but recently received an order for 350 five-ton trucks from the trucking firm of Lowell M. Palmer and Henry E. Palmer, of Brooklyn, N. Y., the aggregate of the order being $1,500,000. The Palmers have recently become large stockholders in the Matheson Company.

The White Sewing Machine Company has leased the building at 629 to 633 North Broad street, Philadelphia, for the purpose of establishing a factory branch for Philadelphia and territory. The branch is in charge of E. C. Johnson, formerly with the company in Cleveland.

A modern up-to-date fireproof garage is to be erected by a company composed of well known Albanians at the corner of Pine and Chapel streets, Albany. C. Sutherland Ransom will be treasurer and general manager of the company. A five-story structure will be erected and will be used as an automobile garage and salesroom, the company acting as agent for a number of machines of well-known make. Abany is a recognized gateway for tourists, and it is said that as many as twenty-five transcient machines are housed at times in that city in a single night during the season. One hundred cars are now owned in Albany, and the promoters of the new garage believe there will be a big demand for new cars when they can be housed in a fireproof garage.

Automobiles were used by the Buffalo fire commissioners for the first time in their annual inspection of the Buffalo Fire Department last week. In former years the commissioners made use of the chiefs' red wagons and carriages. Owing to the growth of the department and the time required to make the inspection, it was deemed advisable to put aside the horse rigs. The plan of using automobiles met with hearty approval by the commissioners, and with the machines the party was able to visit nearly twice as many stations in a day as it did in previous years. The George N. Pierce Company provided the machines.

Walter M. Cross, city chemist of Kansas City, has devised and patented a process by which, he says, he can extract oil suitable for combustion motors from garbage by a secret reduction method. He explains his process only far enough to say that the garbage oil will yield 15 per cent. alcohol. He proposes to make exhaustive tests with automobiles in a few days to demonstrate the value of the new oil.

The Worcester Y. M. C. A. Automobile School opened Monday night with a registration of more than 300. This is the second year of the school, and the registration is far above that of last year.

Tuesday, October 31, was the date last set for the races of the Indianapolis Automobile Racing Association. The races were postponed three times previously because of rain.

To show their appreciation of the paved streets movement, the automobile owners of Muskegon, Mich., recently gave the aldermen of that city an automobile ride which ended with a banquet. The affair was in charge of Dr. C. J. Dove, president of the Muskegon Automobile Club.

It is announced by the Columbia Electric Company, of McCordsville, Ind., manufacturer of the Leader car, that the company will place a runabout on the market next season. A sample car of this type is now being constructed. The car will be of 12 horsepower with divided seat and center chain drive.

The American Motor Car Company is finishing its first car at the Elston Automobile Company's shop, Indianapolis, and expects to have it out within a few days. Specifications have not yet been made public, but it is understood that it is to be a touring car of 30 horsepower. The car was entered in the race meet of the Indianapolis Automobile Racing Association.

Two hundred automobile bodies, finished and ready for shipment, were destroyed in a fire last Friday that did $200,000 damage to the plant of the Central Manufacturing Company in Connersville, Ind. The loss was partly covered by insurance. Plans have been made to rebuild the factory at once, but it is said that three automobile factories will be affected by the loss.

"The Past and Future of the Automobile" was the subject of a lecture delivered by Elwood Haynes, president of the Haynes Automobile Company, at Indianapolis, on

Tuesday evening, October 31, before the Y. M. C. A. automobile school of that city, which was started only a few weeks ago. The lecture was the first of a series of such lectures that is to be given before the school.

Ground has been broken at Flint, Mich., for the new plants of the Buick Motor Company and the Weston-Mott Company. The directors of the Buick company, at a recent meeting, decided to change the plans for their building so as to provide a main structure 350 by 64 feet in ground dimensions, with an east wing 250 by 64 feet and a west wing 100 by 64 feet. The change is made with a view to securing better lighting. Work on the main building and wings will be continued as far into the winter as the weather will permit. In addition to the plans already provided, there still remains an office building to be provided for. This will be erected next spring.

The New Process Raw Hide Company, of Syracuse, N. Y., has announced its intention of going more extensively into the manufacture of metal gears of all kinds as well as its New Process noiseless pinions. In furtherance of this plan, the company has just completed a two-story brick addition containing about 10,000 feet of floor space and is installing a number of additional turret lathes, drills, grinders, spur gear cutters, bevel gear planers and other machinery necessary for the manufacture of accurate gearing. This additional equipment will increase the capacity about 75 per cent.

Mrs. Edith M. Bailey, the Cleveland society woman who has been held in that city for more than three months on a charge of manslaughter, her car having caused the death of a laboring man, has been set free. It was not proved that Mrs. Bailey was violating the automobile speed ordinance, and the county prosecutor held that even if she had been, she could not be convicted, because the Ohio statutes do not recognize such a thing as criminal negligence.

The agency of the Hartford Rubber Works Company, which occupied a store in the Missouri Valley Motor Company's building on Fifteenth street, Kansas City, has moved to other quarters.

The only foreign car in Kansas City up to a month ago was a Clement-Bayard. This has been supplemented now by a Mercedes and a Panhard, both owned by W. R. Nelson, proprietor of the Kansas City *Star*, a paper which is rabidly in favor of a six-mile speed limit, although Mr. Nelson hits up a livelier clip than this on the way to his suburban home on Brush Creek. Mr. Nelson also has a Pope-Toledo in his stable.

According to a consular report, a public service of electric victorias, under the management of a German firm, has been inaugurated in Buenos Ayres. Each vehicle is fitted with a taximeter; the fare is 21 1-2 cents for the first 1,200 meters (three-quarters of a mile) or fraction thereof, and 4 1-2 cents for every 300 meters thereafter.

The Automobile Cover & Top Co., of 148 West Fifty-sixth street, New York, distributing agent for the Gabriel horns, states that about 150 horns a day are being turned out by the factory, and that 2,500 horns have been ordered for foreign delivery.

A powerful touring car in Hinckley, Ill., is being used to relieve a singular situation in De Kalb county, one of the most important counties in northern Illinois. All of the railroads save one, which is inaccessible from the most populous sections of the county, run east and west, so that the people of Sandwich and Somanauk must go around Robinhood's barn to get to the county seat at Sycamore. The people of the southern end of the county are not able to get to the county capital and back home in the same day. A. J. Coster has taken advantage of the situation to press his car into use, and recently made six trips in three days, and is still keeping at it. Among his first patrons was an eloping couple, who beat their irate parents to a place where the knot was tied before being overtaken.

The Brew & Hatcher Company, of Cleveland, has changed its name to the Hatcher Auto Parts Company, Mr. Brew having retired from the company. The company has recently improved its facilities for manufacturing automobile parts of all kinds.

The Peerless Motor Car Company has moved all its machinery from its old factory on Lisbon street, Cleveland, to its new plant on Quincy and Oakdale streets, that city. The general offices of the company have also been removed to the new plant, which will he in full operation in another week. The company is making good headway in getting out its new models.

The American Motor Truck Company of Toledo has been reorganized and incorporated under the name of the Commercial Motor Truck Company by Charles Keller, John E. Morgan, H. W. Hoover, Gus Haas and Otto Krieger. The company is engaged in manufacturing gasoline motor trucks.

C. S. Henshaw, the New England representative for the Thomas Flyer, has arranged with the Rhode Island Motor Car Co., 69-71 Broad street, Providence, R. I., and Wallace L. Wilcox, Fall River, Mass., to handle Thomas cars in those cities, and has renewed contracts with George J. Donahue, of Brockton, Mass., and the Reichert Automobile Station, of New Haven, Conn.

The Duff Manufacturing Company, of Pittsburg, Pa., manufacturer of the Barrett track and car jacks, is exhibiting two gold medals awarded its jacks at the Lewis and Clark Exposition, Portland, and at the Louisiana Purchase Exposition in 1904.

The ruhber goods firm of Morgan & Wright, of Chicago, has opened a branch in Portland. Ore., at 86 Sixth street, with Ballau & Wright.

Alderman Joseph Weston has introduced in the municipal council of Kansas City an ordinance restricting the location of garages to business districts. Residents in Weston's ward recently complained of a garage at Thirty-third street and Troost avenue (within two blocks of Weston's house) which was destroyed by fire last winter. The ordinance was sent to the fire committee.

W. H. Porter, of Lansing, Mich., is carrying people about that city in a Reo auto 'bus. Mr. Porter has placed an order with the Reo company for a new car with a seating capacity of twenty-five, which he expects to have running in about sixty days, to take the place of the other.

A joint stock company at Coldwater, Mich., will soon start a suburban auto line, serving the towns of Quincy, Girard and Union City. Another line, including Coldwater, Bronson, Matteson, Olds and Coldwater Lake is also proposed.

Two suits for $50,000 each have been filed in the New United States Circuit Court at Buffalo, by the Electric Storage Battery Company, of Philadelphia, which alleges that certain patents which it owns covering the manufacture of storage batteries, are being infringed. The complaint states that the patents held by the plaintiff are fundamental and that successful automobile batteries depend entirely upon the use of these inventions. It asserts that the magnitude of the automobile industry has led to the formation of several companies for the purpose of manufacturing automobile batteries, and that these companies are ignoring entirely the patent situation. The company owning the basic patents is determined to sustain its rights. The validity of its patents has been sustained in Buffalo by Judge Hazel and in Utica by Judge Coxe.

The Illinois Automobile and Parts Company is erecting a garage 40 by 90 feet at the corner of Main and Globe streets, Peoria, Ill., where the company will manufacture automobile timers, motors, etc., in addition to conducting a garage. J. A. Holsman, late of the Bartholomew Company, Peoria, is president and general manager.

The St. Louis Motor Car Company, which has been located in Peoria. Ill., since September, has completed the first car in the new plant. The company expects to put out several hundred cars during the coming season, all of the four-cylinder touring car type.

The Moline Automobile Co., of East Moline, Ill., is erecting an additional building 40 by 165 feet, necessitated by its increasing business.

The Winton Motor Carriage Co., of Cleveland, O., is erecting on Berea Road, opposite its factory, a one-story building, to be occupied as a restaurant for its employees. The catering will be in charge of Frank T. Bailey.

The Winton company has made several changes in its agencies: In Buffalo the Winton car is now handled by the Centaur Motor Car Co.; in Newark, N. J., the agency has been placed with C. S. Calvert; the Indiana Automobile Company succeeds the Fisher Automobile Company as Winton sales in Indianapolis and southern Indiana, and in St. Louis the agency has been placed with the Western Automobile Co.

The Crescent City Automobile Company, of New Orleans, La., is now occupying its new garage at 217-223 So. Rampart street.

The Phelps Motor Vehicle Company, of Stoneham, Mass., has been succeeded by the Courier Motor Company, which will occupy the old plant and double its facilities for turning out gasoline cars the coming season.

A new garage has been established at Erie, Pa., by C. R. Dench. The building is of concrete, two stories in height, and is 82 1-2 feet square. A dining-room is connected with the garage.

Leicester, Mass., has lost the greater part of the direct automobile traffic between New York and Boston because of the war against autoists waged by Constable Quinn of that place and the local magistrate before whom the constable has brought his victims. The traffic now goes through Fiskdale and Sturbridge, which have had no local automobile laws. Special limits will soon be announced in both places, however.

An eight-cylinder motor of 24 horsepower has recently been constructed for Santos-Dumont with a weight of but 36 kilos, or 79 pounds. This motor is the work of M. Levasseur, builder of the eight-cylinder motor with which the launch *Antoinette III.* recently made a new record for the hundred kilometers.

Encouraged by the success that has attended the establishment of the auto-'bus line between Philadelphia and Atlantic City, a daily line to Valley Forge has been started. The cars leave 1227 Market street every afternoon at 1:30 o'clock. The route followed is through Fairmount Park and via the Lancaster Pike, through Ardmore, Bryn Mawr and Berwyn to the Forge, a distance

of twenty-two miles. The line is being well patronized, the fare charged being $1.50 for the round trip. The one car now running on the line has seating capacity for seventeen passengers.

A novel means of pleasing the patrons of her father's drug store, has been adopted by Miss Harriet Challenger, of New Castle, about five miles outside of Wilmington, Del. She delivers prescriptions and other articles on hurry orders with an automobile.

The Cleveland Y. M. C. A. has enlarged the scope of its school for automobile engineering which has been carried on during the past two years as a part of its educational course. Heretofore the course has consisted of a series of lectures with demonstrations of parts of certain cars. This year, in addition to taking up everything relating to the care and operation of cars, there will be outdoor experiments and visits to various factories to study the methods used in the construction of cars. Besides owners of cars, many machinists and men desirous of working as chauffeurs will attend the school.

W. E. N. Hemperley, of Massillon, O., and W. E. Stone, of Cleveland, have purchased all the assets and stock of the Forest City Motor Car Company, of Cleveland, and will locate the factory in Massillon. Mr. Stone, who was interested in the development of the car, will be superintendent of the factory. Work of building the cars will start November 1.

The Diamond Rubber Company, of Akron, O., has increased its capital stock from $750,000 to $3,000,000. It is stated that the company will shortly greatly increase its capacity by the erection of new building at its Akron plant.

A. A. Stearns, of Cleveland, has let a contract for the erection of a fine automobile garage at 401 Rosedale avenue, that city.

The Maxwell-Briscoe-Chase Company, general Western agent for Maxwell cars, is opening a branch in St. Louis at 3968 Olive street, which C. D. Harrington will direct personally.

The California branch of the Newmastic Tire Company, of St. Louis, Mo., is now established at 400 So. Los Angeles street, Los Angeles.

The Hess-Pontias Spring & Axle Company has been incorporated with a capital stock of $145 000 to succeed the Vehicle & Implement Spring Co. and the Pontiac Axle Co., of Pontiac, Mich. The company will make a specialty of auto springs, using the highest grade steel obtainable in the country.

In response to inquiry as to whether they would enter the Chicago automobile trade Halsey Bros., of St. Louis state that they had looked over the ground with the possibility of opening there with the Franklin agency, but in view of the lack of a suitable location and other reasons had decided in the negative.

Residents of Kent County, England, are opposing a proposition to tar the roads at the expense of the county, claiming that a portion of the expense should be borne by automobilists, since it is their machines which raise most of the dust.

The Barndt-Johnson Auto Supply Co. has been incorporated in Columbus, O., to manufacture automobile bodies and tops. The company will occupy the building on East Donaldson street, formerly occupied by a church furniture manufacturing company.

The Kansas City Motor Car Company, recently incorporated with a capital of $150,000, and which has absorbed the Caps Bros. Manufacturing Co., has started the construction of its factory in Kansas City. It is the intention to have the plant in operation by December 15, and to undertake the manufacture of practically every part of an automobile. Officers of the company are: President, Frank E. Wear; vice-president, J. E. Caps; secretary-treasurer, R. Caps; general manager, George K. Wheeler; superintendent, John C. Caps.

The thirteenth general meeting of the Society of Naval Architects and Marine Engineers will be held in New York City, at 12 West 31st street, on Thursday, November 16, the sessions continuing through Thursday and Friday. There will be a banquet at 7 p. m., Friday to which members and their guests are cordially invited.

The Indianapolis agency for Winton cars, recently relinquished by the Fisher Automobile Company, has been secured by the Indiana Automobile Company.

Saratoga, New York, is to have another automobile garage, to be erected by J. A. P. Ketchum, who has purchased the lot on Broadway, adjoining the Convention Hall on the north. The building will be 100 by 150 feet, with the entire front of plate glass.

Alexander Smith, of Hartford, Conn., is enlarging his garage at 35 Mulberry street, by the addition of a second story to his present one-story building, and the erection of a two-story building in the rear.

The Harry Fosdick Company, 53-55 Stanhope street, Boston, Mass., has secured the selling agency throughout New England for the Studebaker gasoline cars, and the Fiat cars. The company opened its new salesroom and garage on November 1.

A new garage will soon be opened in New Orleans, La., by the Independent Auto Company, Ltd., which has been incorporated with a capital of $15,000. The company will do a general repair and sales business.

The National Garage & Repair Depot, with F. J. Richards as manager, has opened at 329-331 South Los Angeles street, Los Angeles, Cal.

The Board of Park Commissioners of Wilmington, Del., is considering the advisability of erecting some safety barrier along the drive in Brandywine Park where the road runs very close to some high cliffs, with the object of making the road safer for automobiles.

Moulton & Jordan are now comfortably located in their new Minneapolis garage on Fourth street S., between Second and Third avenues, having moved there from the crowded quarters in the Chamber of Commerce district.

J. S. Spargo recently opened the Motor Car Agency at 209 Fifth street S., Minneapolis.

L. T. Olewine, of Brunswick, Ga., has rented the Levin building on Newcastle street, where he will carry on an automobile agency in addition to his bicycle business. Mr. Olewine has secured the agency for some well-known automobiles.

A. S. Raymond, of Covington, Ky., is the promoter of an enterprise to install an automobile traction line from Danville to Junction City, a distance of four miles, to connect with the L. & N. railroad. A twenty-four seat passenger car will be put in service, to be run through all seasons.

The Antler Stables Company of Toledo, the largest livery and boarding stable in Toledo, has been enlarged and incorporated under the name of the Antler Stables and Garage Company. It is the purpose of the company to add an automobile department to its business, being the first of the kind in the city.

W. A. Post, a prominent citizen of Newport News, Va., is the president of a new corporation which has been formed for the purpose of constructing and operating a railroad line between Newport News and Yorktown. The company will be capitalized at $300,000, and in addition to Mr. Post, the officers are: J. L. Patton, vice president; Charles M. Graves, Jr., of Norfolk, secretary; Arthur Lee, treasurer, and O. D. Batchelor, general solicitor.

Several of the fire companies of Wilmington, Del., have decided to purchase additional combination engines and hose wagons, and it is said that some of them are considering the advisability of having horseless apparatus. One of the companies looked into the matter some time ago, but failed to find what it wanted. Some of the other companies are understood to be looking about now, with the same object in view.

There is some talk of an automobile factory being started at Salisbury, Md., which is six miles south of the southern Delaware state line.

The Grand Rapids Park and Boulevard Association has formally opened a new seven-mile boulevard between Grand Rapids and Jenisonville, Mich. The route touches several interesting spots, among them a group of Indian mounds.

Detroit, Mich., will have a trackless trolley system. The common council of that city has already appropriated $250 for the purpose of drawing plans and specifications. The route will be from Detroit to Belle Isle.

The suit of Mrs. Lettie Marshall, against the Washington Electric Vehicle & Transportation Co., of Washington, D. C., to recover $10,000 damages for the death of her husband, who was killed about a year ago by one of the company's automobiles, resulted in a verdict for the company. Mrs. Marshall sought to prove that the driver of the machine was incompetent and for that reason the company was liable, but she was unsuccessful.

The Never Miss Spark Plug Company, of Lansing, Mich., has added a retail department of automobile supplies and promises to double its business next season. During the past season it has sold 50,000 spark plugs and about 500,000 battery connections.

E. B. Gallagher has rented the building at 228-230 West 58th street, New York City, to be used by them for the storage and repair of Richard-Brasier and Cleveland cars exclusively.

The Universal Power and Promotion Co. has been incorporated in Delaware with $100,000 capital to manufacture automobiles under patents held by C. A. A. Taylor and E. O. Brown, both inventors, of Wilmington. The company proposes to manufacture cars in Wilmington, and the company has secured two cars on which the new device is to be tried. All of the incorporators are Wilmington people; as follows: C. A. A. Taylor, Gen. John P. Donohue, John H. Sehl, A. B. Vernon, Clarence Machlin and H. M. Trysinger.

The Wilmington and Kennett Turnpike Co., owner of one of the best roads out of Wilmington, Del., has served notice on the Delaware Automobile Association that some of the persons operating machines on the road are not making sufficient use of their horns. The company and the association will co-operate in an effort to have the trouble remedied. This action is the result of an accident that happened on the turnpike recently, when some men were run down and one of them so badly hurt that he had to be sent to a hospital.

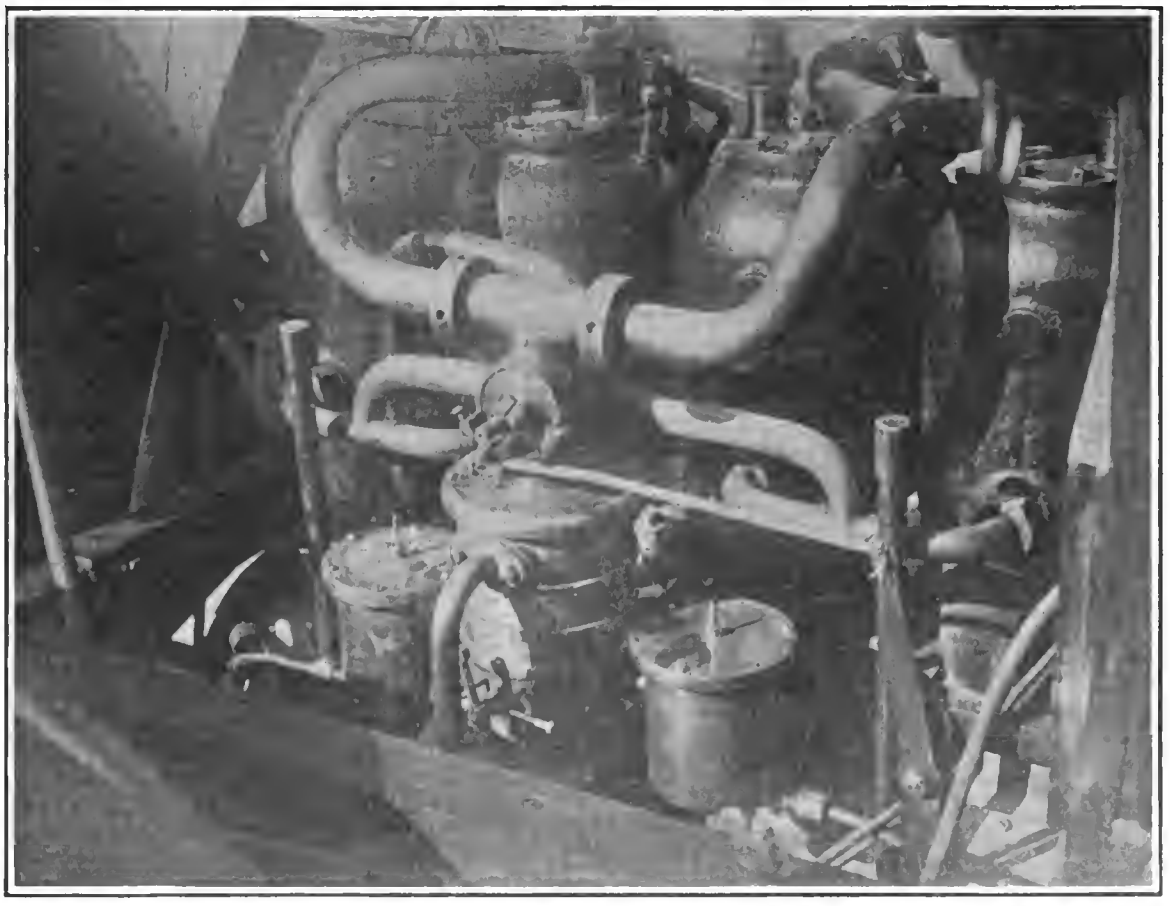
Numerous thefts of autos have occurred in Toledo of late, and as yet no trace of the thieves has been found. The general plan has been to take the car, use it for several hours and then leave it in some out-of-the-way place where it would be found later. In several cases the automobiles have been taken from in front of residences and a day later found several miles out in the country, sometimes intact and sometimes injured.

THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, NOVEMBER 9, 1905—CHICAGO No. 19

CAR USING KEROSENE OIL AS FUEL.

FOR several years a New York automobile builder has been conducting a series of experiments, with a view to producing a carbureter that would enable an ordinary explosion motor to run successfully on either gasoline or kerosene. The device constructed on the basis of the data gained experimentally has been attached to a 30-horsepower automobile, of the ordinary gasoline type, which is now in everyday use in and about New York city. At the same time the tire problem was attacked, the object being to devise a suspension that, used with solid rubber tires, would give as easy riding to the occupants of the car as pneumatic tires. The result was an air-cushion which was interposed between the axle and the spring at the point where the spring is usually bolted on. With the exception of the kerosene carbureter, the pneumatic cushions and the solid rubber tires, the car is a typical gasoline car of good design and workmanship; it was originally built as a gasoline car and intended to run on pneumatic tires; and it was used for some time with gasoline for the motor and pneumatic tires on the wheels, with springs attached in the ordinary way, until the progress of the experiments made it necessary to place the devices in actual service on a car. The carbureter and air cushion were designed by W. I. Twombly, of the Twombly Power Co., Twelfth avenue and Fifty-first street, New York, and were attached to a car of his own construction.



[SIDE OF THE MOTOR SHOWING CARBURETER AND CONNECTIONS WITH GASOLINE AND KEROSENE FLOAT CHAMBERS.

Apart from the carbureter and air cushions there is nothing unusual about the car. The 30-horsepower motor is of the four-cylinder vertical type, water-cooled, with integral heads and jackets and automatic inlet valves; the speed of the motor is at all times under the control of a cen-

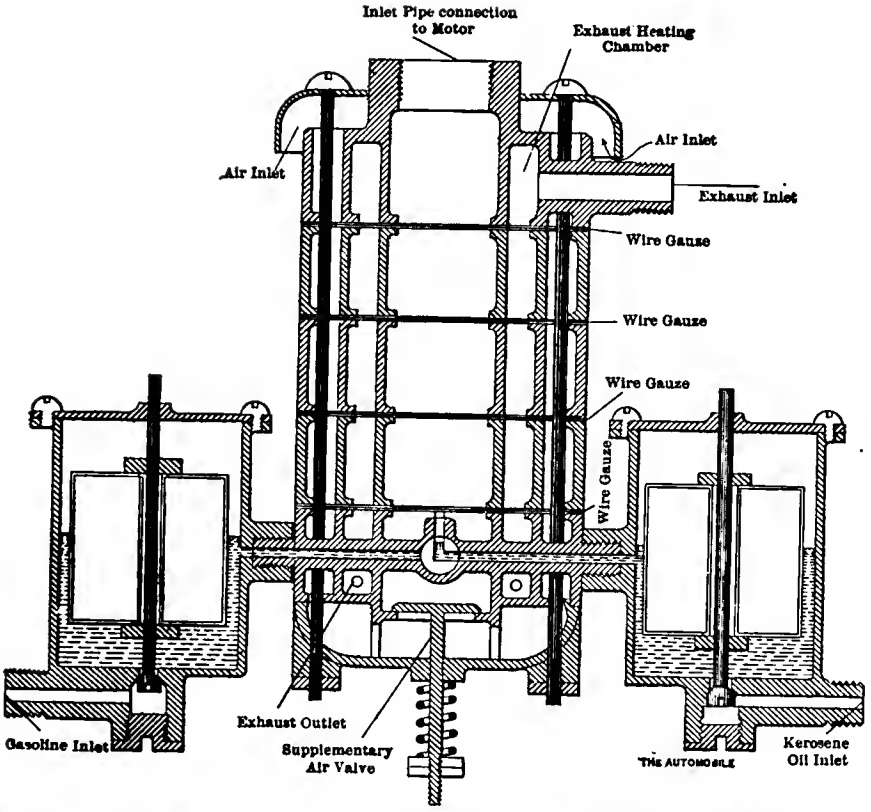
trifugal governor working on the throttle, which is placed in the supply pipe close to the carbureter. Lubrication is by splash; ignition is by jump spark, with quadruple vibrator coil on the dash. The rear wheels are driven by side chains; a leather-faced cone clutch and sliding gear transmission are used. The side entrance body is of good size and is carried on semielliptic springs, each spring being shackled at one end and pivoted at the other. Distance rods on the rear axles transmit the driving stresses to the body of the car. A large cylindrical kerosene tank is hung at the rear of the body, exhaust pressure being used to raise the oil to the carbureter. A gasoline tank is placed under the seat and a three-way cock fitted so that either fuel can be used.

In order to make a test of the carbureter and pneumatic cushions under actual working conditions, a trip was made in the car by a representative of THE AUTOMOBILE and these parts closely watched. The motor was started on kerosene without cranking, by switching on the ignition current, after having stood for about ten minutes. The exhaust gases escaped from the muffler in an invisible state, and no odor was perceptible when standing close enough to feel the hot gases; the exhaust remained invisible and odorless throughout the trip. A stop was made at one point and the condition of the exhaust investigated as thoroughly as was possible at the time. A sheet of clean paper was held within three or four inches of the exhaust pipe, so that the escaping gases impinged directly on the paper; no deposit of any kind was made, the paper remaining perfectly clean and unstained after having been repeatedly held in the path of the exhaust gases. The representative of THE AUTOMOBILE held his face as close to the exhaust pipe as could be done without discomfort from the force of the blast and remained in that position for several minutes. Under these conditions there was a barely perceptible odor, resembling that emitted by an ordinary gas stove, only much less pronounced. There was no irritation of the eyes or of the sensitive membranes of the nostrils; the blast of the exhaust had about the same effect as so much hot air blown in the face. The connections were then changed by means of the three-way cock so that the carbureter took gasoline instead of kerosene. The speed of the engine did not vary perceptibly and there was no difference in its running. No explosions were missed, either during this test or during the run on the road, and the motor ran as well with one fuel as with the other. After allowing the engine to run for a few minutes to use up the small quantity of kerosene remaining in the carbureter passages, the tests at the mouth of the exhaust pipe were repeated, with the same results as when kerosene was used. Clean paper was not soiled and there was the same absence of odor and smoke. The three-way cock was set in mid position, so that the carbureter received a mixture of gasoline and kerosene; and the valve was jerked back and forth from one fuel to the other, all without disturbing the steady running of the engine or making the exhaust any less clean.

During the run the car took the steepest grades in Central Park and Riverside Drive on the high gear, the engine pulling as strongly and running as smoothly as on a previous trip when only gasoline was used. In fact, the engine ran faultlessly at all times, even when throttled down to a crawl.

The other novel feature of the car, the pneumatic cushions, whose general appearance and location are shown in the engravings, could be watched from both front seat and tonneau and their action under varying road conditions noted. Most important, however, was the effect produced on the riding qualities of the car; and this was interesting. On ordinarily good roads the car was quite as comfortable as if equipped with pneumatic tires; it was noticed that the vibration did not increase as the speed of the car increased, however, and on passing over bumps or ruts there was a marked absence of any tendency to toss the passengers about in the seats, this being especially noticeable in the tonneau, which is usually a very lively place in a car of short wheelbase when the road is rough. Car tracks and other obstructions of a nature to give the occupants of the car a sharp, quick jolt were passed over smoothly and easily, with little lift of the car body and practically no jolting. Under certain conditions, such as when passing rapidly over cobblestones or a very rough road surface, a slight "hardness" was apparent. At no time was there any sensation as of riding on solid tires, however, and there was a peculiar softness in the suspension, doubtless due to the fact that the connecting

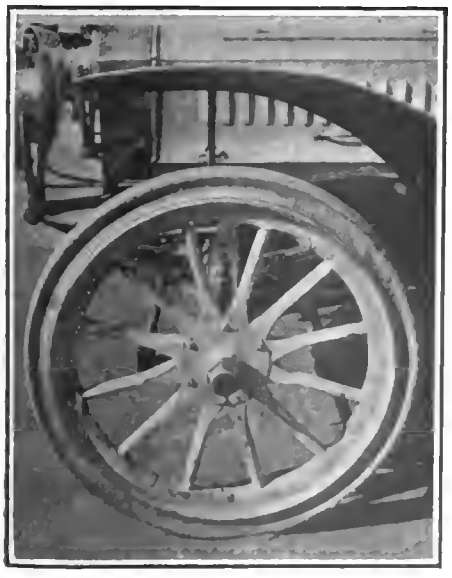
EXPERIMENTAL CAR USING KEROSENE AS FUEL AND FITTED WITH PNEUMATIC SUSPENSIONS—W. I. TWOMBLY AT THE WHEEL.



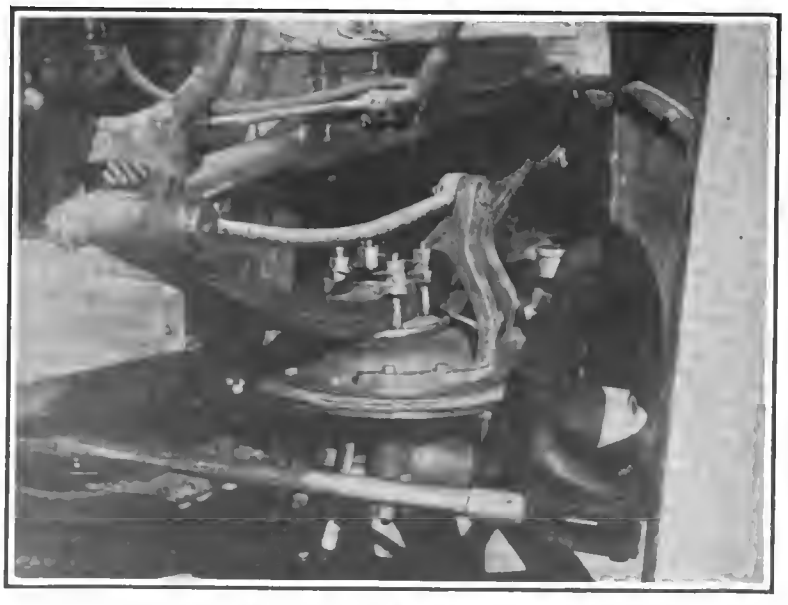
VERTICAL SECTION OF THE CARBURETER SHOWING FLOAT CHAMBERS AND MIXING CHAMBER.

medium between the springs and axles is elastic. The hardness mentioned is probably due to the fact that the springs, especially in the rear, are rather stiff, and the wheels are of small diameter for the car. The wheelbase is short and no attempt had been made to adapt the car to the new suspension. It seems likely that with a longer wheelbase, larger wheels, and springs adapted for use with the pneumatic cushions, the car will ride at least as comfortably as a well-hung car with pneumatic tires. Another point to be noted is that the experimental cushions used were restricted as to size by the space available for them. In a specially designed car the cushions will be considerably larger and better adapted to absorb vibration.

Both these devices are simple and substantial in construction and there is no apparent reason why they should not give long service under all conditions of road work. The carbureter, illustrated by a line engraving and an exterior view, has two float chambers, one for gasoline and one for kerosene, each connected with the spray nozzle by a passage. At the junction of these passages with the spray nozzle inlet there is a three-way cock; this is shown in the engraving set to deliver kerosene. A little lever for moving this cock may be seen in the engraving showing the exterior of the carbureter; the set screws for limiting the motion of the lever and so regulating the amount of opening allowed may also be seen. An eye is provided in the lever so that a rod may be connected for operation from the dashboard, but this was not attached when the photograph was taken. The float chambers construction requires no explanation, the drawing showing the arrangement plainly. The central section of the carbureter, however, is unusual. It was found by experiment that kerosene, heated to about 140 degrees Fahr., is about as volatile as gasoline at ordinary temperatures; but the air mixed with the kerosene vapor must be at least as hot as the vapor; if not, condensation will occur and the mixture will burn with the familiar smoke and smell; therefore the oil and air must both be heated before they are brought together and must be kept hot. It was also found that some mechanical means for breaking up the particles of kerosene was essential; kerosene showed a strong cohesive tendency not apparent in gasoline. The first requirement, the heating of the air and oil and the final mixture, is accomplished by filling an annular chamber in the carbureter with hot gases from the exhaust. This compartment is concentric with and just outside of the central mixing chamber. The hot gases enter through the inlet shown on the right-hand side, near the top, fill the chamber, pass downward, surrounding the fuel passages, and escape through the small openings shown near the bottom. The whole carbureter is thus kept hot and considerable heat is taken up by the horizontal layers of fine wire gauze, to be utilized, as will appear later. All the air used is admitted under the hood which forms the top of the mixing chamber; there is no other air inlet.



PNEUMATIC SUSPENSION SEEN FROM OUTSIDE WHEEL.

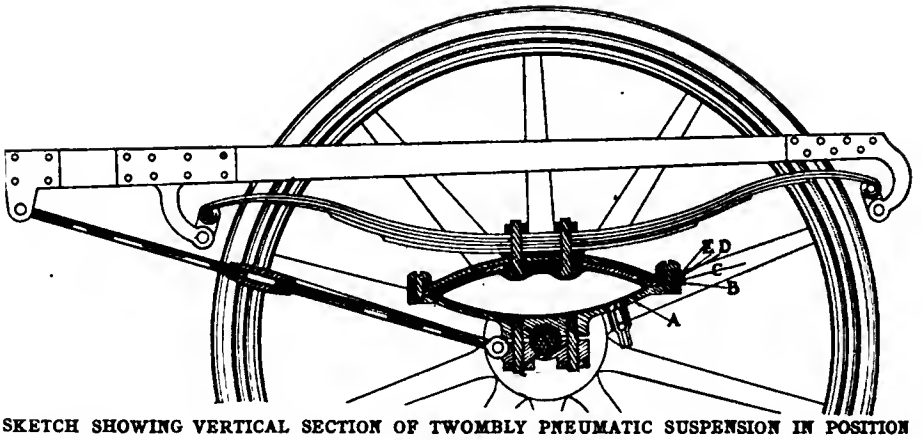


GENERAL ARRANGEMENT OF THE TWOMBLY PNEUMATIC SUSPENSION.

Passing through a narrow space, the air is brought in contact with the hot walls of the heating chamber, and also passes through four successive layers of gauze, from which it takes up additional heat. The hot air now passes into the chamber at the bottom of the carbureter, below the auxiliary air valve, and when it arrives at the spray nozzle is at about the same temperature as the kerosene. At slow speeds the auxiliary air valve remains seated, the air drawn through the small passages shown being sufficient; but the valve lifts as the demands of the motor increase, the action being similar to that of the auxiliary air valves used on many gasoline carbureters. On leaving the nozzle the spray immediately strikes the first gauze diaphragm, which commences the work of dividing the particles of kerosene. There are four of these diaphragms, each consisting of several layers of gauze, and each does its share toward the breaking up of the fuel. The heat taken up by the gauze tends to increase the temperature of the mixture, and so condensation during the mixing and dividing process is avoided. The mixture is carried out through the central outlet at the top of the mixing chamber and is piped to the engine, the pipes being close to the cylinders to avoid cooling. A throttle, shown clearly in the photograph, is placed immediately over the opening and is of ordinary construction.

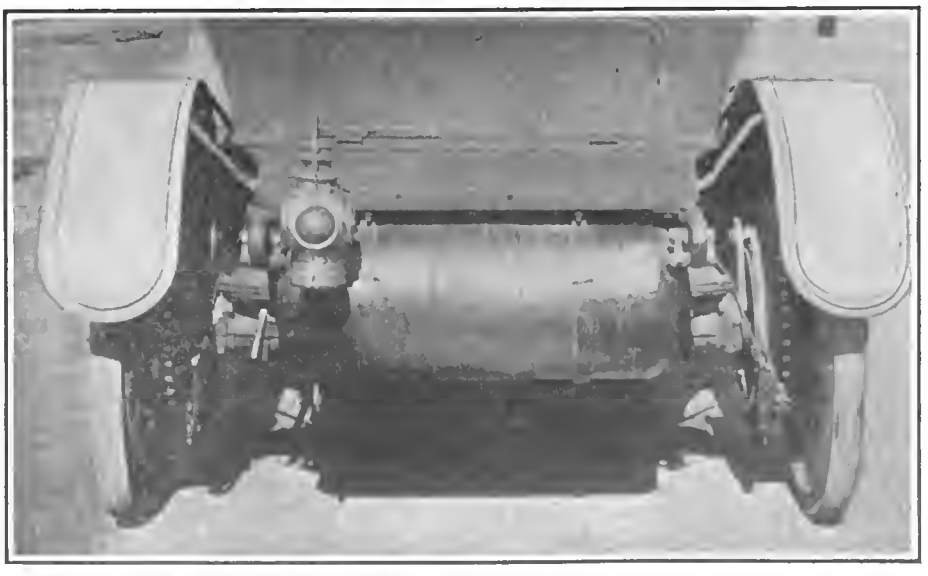
The carbureter is made in five sections held together by the long bolts shown; the divisions occur where the gauze diaphragms are inserted, the gauze being clamped between the sections. A cock is placed in the pipe leading in the exhaust gases, so that the pipe can be throttled when gasoline is used and less heat is required. Though not so shown in the diagram, the three-way cock is so made that when set in mid position it will take gasoline and kerosene in approximately equal parts.

The pneumatic cushion is even more simple and easily described; the engravings show the parts plainly. The foundation of the cushion is a saucer-shaped gun metal casting, on the bottom of which are lugs for the bolts by which the cushion is attached to the axle. The top of the cushion consists of an outer cover of heavy pigskin over an intermediate layer of rubber and fabric vulcanized together. An "inner bag" occupies the same relative position as the inner tube of a pneumatic tire, and is inflated through a valve that projects through a hole in the bottom casting. The pigskin and the rubber fabric are held between two plates, the spring being secured to the upper plate by four bolts which pass through and hold both plates at the same time; the inner rubber bag is of course free. The thickness of the whole top of the cushion is about five-eighths of an inch; the edges of the discs are clamped between the flange of the saucer-shaped casting and a ring, closely spaced bolts holding down the ring. Attached to the casting of each front cushion is a bracket carrying one end of a torsion rod, the other end being pivoted to the front spring hanger. The front axle is kept parallel with the rear axle by distance rods secured to the frame. The rear axles are also fitted with truss rods in the usual way.



SKETCH SHOWING VERTICAL SECTION OF TWOMBLY PNEUMATIC SUSPENSION IN POSITION ON FRONT AXLE OF CAR.

The cushions now on the car have been used in runs aggregating between 700 and 800 miles, and show no signs of deterioration. They are out of the way of accidental injury and are subjected to none of the wear and tear that pneumatic tires get from contact with the road. A point that has its effect both on the durability of the cushion and on the easy riding of the car is that it is not necessary to pump the cushions to a high pressure; it is only necessary to keep the car from bumping on the axles, and the pressure is only that required by the weight of the car. In the case of the experimental cushions this is about 25 pounds to the square inch. The next set will be made much larger—probably 16 inches in diameter. Both devices will be seen at the forthcoming automobile show in the Sixty-ninth Regiment armory, New York.



REAR VIEW OF CAR SHOWING PNEUMATIC SUSPENSIONS FITTED TO BACK AXLE.

A competition for acetylene headlights and searchlights was promoted some time ago by leading German motoring and industrial corporations in order to assist the development of reliable and safe lamps for automobile purposes. The list of awards published recently shows that twenty-six lamps with generators, seventeen searchlights and fourteen generators were entered for the contest. The lamps were all put to practical test, as they were handed over to the German Motor Volunteer Corps and were used for some time, as well as being carefully examined in the laboratory. The chief points were construction, weight, power of light, consumption of carbide and time of burning, and awards were made as follows: Class A, lamps with generators, no first prize; second prizes to the Westphalian Metal Industry, Ltd., Lippstadt, and J. Schwarz, Berlin. Class B, searchlights without generators, first prize, A. Boas, Roderigues & Co., Paris; second prize, Westphalian Metal Industry, Ltd.; third prize, Oberrheinische Metal Works, Ltd., Mannheim. Class C, generators only, first prize, E. J. Arnold, Successor, Dresden.

It has been estimated that the maximum temperature at the hottest part of an exploding mixture in a gasoline engine cylinder is about 4,000 degrees Fahr.

Automobile Laws of England.

From Our Own Correspondent.

LIVERPOOL, Oct. 27.—Although self-propelled carriages for use on the public highways were introduced first in England, it was not until 1896 that automobiles were allowed to run freely in England, adverse laws passed many decades earlier having been enforced without modification to meet the new development. This situation allowed France to gain a lead in the automobile industry that even now, after a lapse of nearly ten years, is very largely maintained. Before 1896 all mechanical vehicles, small or large, were classed as "traction engines" and had to be preceded on the road by a man on foot carrying a red flag. The maximum speed allowed was four miles an hour.

Now that the recently appointed royal commission is sitting to consider carefully the question of the rights and duties of automobile users, and that the future of the industry and pastime will depend largely upon the results of the commission's deliberations, a brief account of the various changes that have been made in the law affecting automobiles should be of interest.

Locomotives on Highways Act.

The absurd restrictions of the old locomotives act were abolished by the Locomotives on Highways Act passed nine years ago, which permitted a maximum speed of fourteen miles an hour, but this limit was reduced to twelve miles by the local government board in accordance with the power given to it by the act. The use of motor vehicles for commercial purposes was greatly hampered by the imposition of many restrictions as to weight, maximum width, load per wheel, etc., but of late years many changes have been made in the law, so that now these commercial cars are used probably to a much larger extent over here than in any other country. The twelve-mile-an-hour limit was too low even for the most considerate driver and, except in cities, the law was practically a dead letter for some years until the reckless speed of many drivers, particularly those of high-powered cars, caused an outbreak of public feeling against the new form of locomotion. Immediately followed the obnoxious "police traps," with careless timing of cars over ridiculously short distances—generally measured out on deserted roads, where high speeds would cause no public danger—and a spirit of antagonism was raised between automobilists and the police which has lasted to the present day. Particularly in the south of England did this police activity manifest itself; in the north and in Ireland and Scotland more friendly relations were maintained.

Motor Car Act of 1903.

Two years ago the Automobile Club of Great Britain and Ireland started an agitation for a law that should provide for the identification of automobiles and that would grant in return the privilege of higher speed. After some discussion in Parliament—where the blind, unreasoning attitude of the horse interest was very marked—the Motor Car Act came into force in January, 1904. While granting the right of speeding up to twenty miles an hour, the act created about thirty new offences, with penalties of $10 to $250, or imprisonment in aggravated cases.

The act provides for the issuing of identification numbers for all cars, and these are allotted by the various city and county authorities, each licensing authority having a distinguishing letter. The letter and numbers must be visible from the front and back of the car, and provision must be made for their illumination at night.

Every person driving an automobile, even on a trial trip, must carry with him his driving license, but as no examination is made of the driver's skill or capabilities, it is somewhat difficult to see the use or necessity of the license, except as a means of checking the address given by a chauffeur if stopped by the police—a license has actually been taken out for a blind man. It is somewhat of a hardship to have to carry the license always when driving, and a chance moment of forgetfulness may lead to a $25 fine. As an evidence of how strict the police are in carrying out the letter of the law, there are at least two cases on record in which automobilists have been heavily fined for not producing their licenses, when, as a matter of fact, the licenses were at the time in the custody of the licensing authority for their annual renewal.

Driving License and Registration.

An annual fee of $1.25 must be paid for the driving license, and the charge for the allotment of identification numbers for automobiles is $5 and for motorcycles $1.25. These numbers do not need to be renewed until a change in ownership of the machine is made. It is estimated that the fees paid in the twenty-one months since the act went into force aggregate about $400,000. In addition, nearly $600,000 is paid annually by automobile owners to the inland revenue authorities as carriage taxes. Yet, in spite of this, the public, at the instigation of the halfpenny "yellow press," cries, "Tax the motorist."

For all this outlay the automobilist gets in return—nothing. As a matter of fact, the act provided that caution signs should be erected by the local authorities at dangerous corners and crossings, but very little of this has been done, and in any case it benefits all road users alike.

Speed Restrictions.

While the maximum speed allowed is twenty miles an hour, the automobilist is generally prevented from traveling at this rate when in populated districts by the clauses in the act forbidding "furious driving." The police officer, whose promotion seems to be dependent upon the number of convictions of car drivers he secures, nearly always makes charges under this clause, thereby avoiding the necessity of alleging any particular speed. As can be understood, to the average country magistrate—generally a gentleman with strong agricultural interests—any speed above walking pace appears to be "driving to the danger of the public which *might be expected to be* on the highway at the time." There is something delightfully vague about this last line which appears in the law. The local government board was empowered by the act of 1903 to reduce the speed limit to ten miles an hour, or even less, upon application by local authorities in cases were special danger would be caused by a higher speed, but, thanks to the opposition raised by the Automobile Club and the Motor Union, only half a dozen such limits have been imposed.

Every breach of the act, whether through some slight technical error or by a more serious offense, carries with it endorsement of the conviction on the driving license, the sole exceptions to this rule being the first and second infractions of the speed limit clause. When the unfortunate driver has three offenses recorded against him on his license, this license is withdrawn, and under a big penalty he is debarred from driving a car or from obtaining a new license until the present act has expired, which will be December 31, 1906.

Gathering Evidence for New Law.

However, the Motor Car Act was admittedly an experiment, and future legislation may prove more favorable. At the present time public opinion has been greatly aroused by an unfortunate series of automobile accidents, which, while not disproportionally heavy in comparison with fatalities due to other classes of vehicles, have been so magnified and exaggerated by the sensationalist newspapers that any attempt at automobile legislation at this time would probably be very oppressive. Hence all automobilists have welcomed the institution of a royal commission, which will hear all evidence and then report to Parliament as to what legislation is required. The motorists' case is being presented by the Motor Union, backed by the Automobile Club, and for months past evidence has been collected of police persecution and other injustices.

The wish of the general body of automobilists is to make proficiency in driving a necessary condition for obtaining a license and in return to have the speed limit abolished. While the penalties for dangerous driving might be made even more severe, it is felt that the many petty offenses which the driver is at present liable to commit might be abolished. It is also desired that revenue accruing from taxation of autos should be spent on the maintenance of the

roads. If this were done, a tax, graduated according to horsepower, might be arranged so that owners of high-powered cars should contribute more to road maintenance than the user of the modest runabout.

Suggestions for Tourists.

For the information of Americans who may be thinking of bringing their cars over for a tour in the islands, a note on the necessary formalities may be useful. There is, of course, no customs duty to be paid on the car when entering the country. Forms for registration can be obtained upon application from the local licensing authority—the town clerk if in a city like Liverpool, or the clerk to the county council if otherwise—and on payment of $1.25 (5 shillings) a license will be issued, allowing the holder to drive a car in any part of the British islands, and for $5 (£1) an identification number will be allotted. This must be painted on the front and rear of the car, or on plates attached, which must be in accordance with the regulations as to size, color, etc. This done, the tourist is at liberty to start on his tour, always remembering, however, that the rule of the road is the opposite to that in America; that is, the driver must keep to the left of the road except when passing another vehicle from behind.

Features of Leading French Cars for 1906.

From Our Own Correspondent.

PARIS, Oct. 27.—One of the first French firms to complete its 1906 models is Charron, Girardot & Voigt. Construction of parts for next season's machines began as early as last May, so that by the end of October the first of the new cars were ready for delivery.

In the new model the three-point suspension has been adopted for the motor and change-speed gear-case. The two-to-one gear is completely enclosed, as well as the rear brakes, which have been very greatly increased in strength. In the 20- and 30-horsepower cars the magneto is placed on the inlet side of the motor, while on the 50- and 75-horsepower models it is carried on the exhaust side. On the 20- and 30-horsepower models there is the usual change-speed gear with parallel shafts and direct drive on fourth speed. The 50- and 75-horsepower models have double sliding gear. All important parts are of nickel steel, and each of the differential shafts in all types is in one piece.

In addition to their standard models, Charron, Girardot & Voigt are bringing out a very handsome automobile intended especially for town use and selling at $2,700 for the chassis only in France, (The same chassis landed in America would cost fully $4,000 when the 45 per cent. duty and the freight and other charges are added.) It has a 14-horsepower four-cylinder motor inclosed under the usual C. G. V. form of bonnet; a low frame, the height from the ground being but 52 centimeters (20.48 inches), equal-sized wheels of 815 by 105 millimeters (32.09 by 4.13 inches), propeller shaft drive, Simms-Bosch magneto and small accumulator to facilitate the starting of the motor, 30 liters of water under pressure, four speeds and reverse with direct drive on the high.

The most noticeable feature of this town car is that the driver's seat, instead of being at the right, is now to the left. It is claimed that this position will be much more convenient for driving in crowded streets, as it enables the driver before passing a vehicle to see that the road ahead is clear, and renders turning around a most simple operation. The steering wheel and controlling levers are placed in the middle and the footman occupies the right-hand seat. In this position he can descend to open the door of the car without being obliged to walk around the end of the car. Simplicity and comfort have been especially studied in this car. Every mechanical part is inclosed and the vehicle is as silent as an electric. Ball bearings are fitted throughout, hot water circulates around the carbureter, and in addition to the two longitudinal front springs there are two rear *C* springs and one rear transverse spring. The space reserved for the body is 2.3 meters by 80 centimeters (70.5 by 31.5 inches), which allows a side entrance and a width of body of 90 or 95 centimeters (about 35.5 to 37.4 inches). With a coupé or landaulet body this new town vehicle is one of the most luxurious and at the same time most practically convenient automobiles yet constructed.

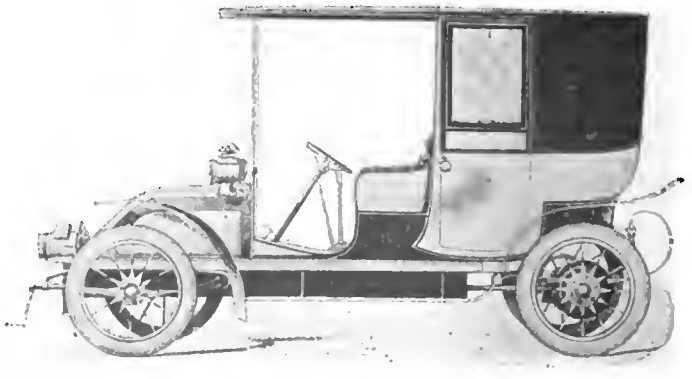
Four New Hotchkiss Models.

Hotchkiss cars will be well represented at the forthcoming salon. Although the new models are not yet definitely decided upon, some particulars have been obtained regarding what may be expected next year. There will be four models: Type *C*, with 29-horsepower motor under the seat, at $3,400 for the chassis in Paris; type *F*, 29 horsepower, 112 mm. bore and 120 mm. stroke (4.4 by 4.7 inches), at $3,200; type *J*, 35 horsepower, 115 mm. bore and 120 mm. stroke, at $3,600, and type *D*, 42 horsepower with motor of 120 mm. bore and 150 mm. stroke (4.7 by 5.9 inches), listed at $4,400 for chassis only in Paris.

The most interesting model is the type *J*, the chassis of which has been especially constructed for touring purposes, and while the motor is powerful enough for any carriage work, however heavy, it cannot be classed with the monsters which use large quantities of gasoline and are expensive in tires. It can attain a speed of upwards of forty-seven miles an hour and is exceedingly robust, supple and silent. General lines of construction are retained, including shaft drive, which has given much satisfaction. Ball bearings which were employed on the first Hotchkiss cars will be retained, being fitted in every part of the engine where possible, including the crankshaft bearings. A new carbureter will be brought out which will contribute to the flexibility of the car and facilitate slow running on fourth speed for town work. Ignition has been especially studied and customers will have the choice of two systems, either high tension by magneto and sparking plugs, or low tension with make and break in the cylinder. Both of these systems have been perfected so as to render the up-keep as low as possible.

Modifications in Mercedes Chassis.

The 1906 model of Mercedes chassis has not yet been brought out, but particulars as to what may be expected have been obtained from headquarters. The well-known Mercedes metal clutch which has given satisfaction in the past will be retained. It will, however, undergo a few modifications, the most important being the introduction of a system of lubrication so as to obtain more suppleness and make the car easier to to handle in town use. The motor, in its general lines, will be the same as the Mercedes Simplex since 1902, with some rather important modifications in the sparking mechanism, which, while it remains the same in general principles, will be much more easily dismounted and have greater qualities of endurance. The combustion chambers will be modified so as to give 4 or 5 horsepower



C. G. V. 1906 TOWN CAR WITH COUPE BODY.—Driver Sits on Left Front Seat. Levers in Center. Note New Form of Rear Springs.

more than in the past. Thus, next year, instead of 28-32, 40-45 and 65 horsepower, the types will be 30-35, 45 and 70 horsepower. The pump will be more powerful and the well-known type of honeycomb radiator will have an increased capacity. In the 1906 model the regulator gear instead of being behind the motor will be placed in front of it, between the radiator and the motor. It will be completely inclosed in an aluminum case, rendering the engine much more silent than in the past.

The gear box is quite new, stronger than heretofore, and the fourth speed is in direct engagement by an entirely new method. When the fourth speed is being used all the other gears are stationary, thus making the car more quiet and reducing frictional losses of power.

Pressed steel frames will be used as heretofore, the length for side entrance cars being 94 inches, but instead of elliptic springs, excessively long (55 inches), straight springs will be employed with a new combination of spring hangers, permitting the use of a body of 94 or 141 inches without any decrease of stability.

A new carbureter will be used in 1906, particulars of which cannot be made known until patents are obtained, but which it is declared will give economy in consumption and contribute largely to the smoothness of operation of the car.

New Darracq Clutch and Control.

A visit at the Darracq factory at Suresnes, Paris, reveals the greatest activity. At present the first series of 600 cars for next season is well under way, and as soon as these are out other equally large series will be started. No change in the conditions of sale will be made next year, the arrangements in effect during the past few years having given entire satisfaction. A great increase in the number of cars exported to America is certain, declared one of the heads of the firm to The Automobile representative, but no change will be made in selling prices.

In essential features the 1906 model will not be a great change from that of this year, but several improvements have been adopted which should certainly be appreciated. The adoption of a progressive clutch is the most important change. The leather-faced clutch is retained, but four studs, placed semi-distant, pierce its circumference near the outer edge, raising the leather very slightly. Within the cone are bolted four metal sleeves that contain the terminals of the studs and a spring of special construction. The pressure of the springs acting through the broad-faced studs on the surface of the female cone prevents the clutch being let in with too much force; even if the foot were suddenly released from the pedal these springs would take up so much of the impetus as to prevent breakage. It has been found by practical tests that the spring studs on the clutch give an admirable slipping surface, making it possible to drive the car at a rate of a mile an hour with the greatest ease.

Push-down or piano pedals have been abandoned for pedals of the push-forward type, which have been given a long leverage and been so placed that the foot is in a natural position when pressing home. The pedals are but two in number, the left one acting on the clutch and at the same time diminishing the supply of gas so as to prevent the motor racing when suddenly relieved of a load. The right-hand pedal withdraws the clutch and controls an internal expanding brake acting, metal to metal, on a drum just behind the change-speed gear. There is only one hand lever, which controls internal expanding brakes on the rear axle. This, however, is not needed for ordinary use and would be omitted if automobile regulations did not demand its presence. Everything connected with the control of the car is thus placed on or around the steering wheel, the change-speed lever being just below the wheel. The driver of a Darracq car can entirely control every movement of his vehicle without moving in his seat, an advantage which is appreciable on a long run.

Krieger Electrics and Combination System Truck.

The most important of the French constructors of electric automobiles, the Kriéger Company, intends to exhibit in the salon an electric landau, a three-quarters landaulet, a victoria, an omnibus and a gasoline-electric chassis. In the industrial section will be exhibited a gasoline-electric omnibus and a combination system truck with powerful electric searchlight for army work. This latter was successfully employed in the recent French army maneuvers. Some time ago the Kriéger Company sold its patent rights for America, but cars have never been constructed in the United States, notwithstanding very favorable engineering comment. The gasoline-electric system consists of a 20-horsepower, four-cylinder vertical motor with magneto ignition and running at 1,200 revolutions a minute, directly connected with a dynamo by an elastic coupling. The power developed by this group is equally distributed to two electric driving motors acting separately on the rear wheels.

Peugeot Bringing Out Runabout.

Perhaps the most important feature of 1906 will be the appearance of the Peugeot runabout. At present the big French firms find the construction of powerful high-class automobiles so profitable that they pay no attention whatever to popular vehicles, with the result that there is great danger of France being left solely as a constructor of expensive automobiles. The firm of Peugeot Frères is about to remedy this defect by bringing out a reliable runabout at a price well within the reach of the great middle class. There are indications, too, that this will be but the beginning in France of the runabout as it is known in the United States. The new Peugeot machine, full particulars of which have not yet been made public, will be constructed in series of 1,000. The wheelbase will be 78 inches, track 45 inches, and the weight, including tires and sparking apparatus, will be 737 pounds. It will carry a two-seated body weighing about 154 pounds, giving a total weight of 891 pounds. The new vehicle will be thoroughly well constructed on the lines of the big touring cars, the whole mechanism being strong and not likely to get out of order. It will consume but little gasoline and the upkeep of tires will not be high. Peugeot Frères have won a reputation as builders of bicycles and motor cycles, their factory at Valentigney in the department of Doubs turning out no fewer than 50,000 machines annually, and with their past experience, extensive means of production, and the building of cars in large series, they may be expected to produce in their 1906 runabout a popular machine and one that will probably increase the popularity of the small car.

Renault Four-Cylinder 10-H.P. Car.

Renault Frères state that the changes in their 1906 model have not yet been definitely decided upon. It is known, however, that the firm will bring out a new 10-horsepower, four-cylinder car specially constructed for town use in which silence and flexibility have been made strong points. This is probably the smallest four-cylinder motor yet constructed.

NEW LICENSES IN PENNSYLVANIA.

Philadelphia, Nov. 6.—Under the new Pennsylvania automobile law, which goes into effect January 1 next, the enforcement of the provisions of the law will come under the jurisdiction of the State Highway Department, immediate supervision of the details, however, being the work of the State Automobile Bureau, of which H. M. Cutshall, former member of the legislature from Crawford county, will have charge.

Licenses will be issued by the State Highway Department, instead of by the prothonotaries, as heretofore, and after January 1, 1906, it will be unlawful to operate automobiles in this commonwealth without a license from the former. With each license will be furnished two tags, one for the front and the other for the rear of the machine, and the latter must be so placed as to be easily read day or night.

Up to date no information has been published to indicate that all applications for licenses will not have to be sent direct to Harrisburg. It is hoped, however, that before the first of the year the State Highway Department will open suboffices here and in Pittsburg and other large cities.

There was a time when if we saw an automobile in town we would follow around a half day if necessary to find out who owned it so as to write it up, but now a person will hardly turn his head, they are so plentiful.—South Dakota *Exchange*.

On Magneto Ignition—Low Tension Systems.

FROM a mechanical point of view, the magneto machine should not present any great difficulty to those who have trained themselves to understand the organism of a modern motor car. Still, the fact remains that many motorists, thoroughly proficient in other respects, have but a hazy idea of the methods employed to ignite the charge in a gasoline motor. The reason for this is not far to seek, says a writer in the *Autocar*. There is something intangible and abstract about electricity which engenders a feeling of respect, and almost of fear, in the minds of many who would willingly tackle the most difficult mechanical problem. In the first place, it is almost impossible to describe electricity itself, or to account for its production. A comparison with a more familiar form of energy, namely, heat, may help.

We know that heat can be generated by many means. For instance, the combination of certain chemical substances will produce heat. In some cases the evolution of heat will be very rapid and an "explosion" will result; in others, the heat will be far less intense and we may only obtain a slight rise in temperature.

Electricity may also be generated in a somewhat similar manner; hence the primary battery and the "accumulator," or secondary battery.

We have grown accustomed to the idea of heat; our experience of it dates back to our earliest childhood. But our respect for heat has worn off with years and we do not realize that the question, "What is heat?" has caused as much trouble among scientists as the question, "What is electricity?" Hence we are prepared to study the heat engine in its many forms, but are often awed by the simplest piece of electrical apparatus.

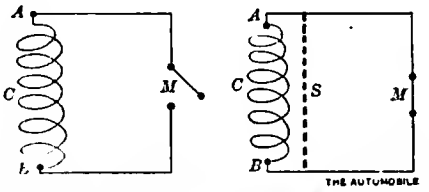
Heat can also be generated by motion. A body passing through the air becomes heated. If it passes rapidly, the heat may become so intense that the body catches fire. Electricity, too, may be produced by motion, but the motion must take place in a suitable medium. The common magnet is well known to all and we know that its influence is felt to a considerable distance in the space surrounding it. This space is called the magnetic field. Now, if a bar of metal be moved through a magnetic field in certain directions, an electric current will be generated in that bar. When the motion ceases the current dies away.

Here, again, the production of electricity is really no more mysterious than the production of heat. Yet we profess to understand readily why a bearing runs hot or a tire warms up in traveling along a road; but we are apt to regard the electric current produced by a magneto as something altogether beyond us.

After all, the principle is simply this: A conductor of electricity is moved—usually rotated—in a magnetic field and a current of electricity is thereby generated. A rapid motion will produce an intense current—a current, in other words, of high pressure or high voltage, whichever term we prefer to use. When once this fundamental principle is understood and taken as an acknowledged fact, the rest is comparatively easy.

There is one more point on which the "heat" analogy may be of help. If we wish to light a match, it makes no difference whether we rub the match along the box or the box along the match; the necessary heat is produced all the same. Similarly, it does not matter whether we move the electric conductor across the magnetic field or the field across the conductor; in either case an electric current is produced in the conductor.

We have assumed that the conductor consisted of what is called a "closed" circuit—that is, a complete ring or path along which the electric current may flow. When



FIGS. 1 AND 2.—SHOWING ELECTRIC CIRCUITS.

the conductor is incomplete, or, in other words, forms an "open" circuit, no current can flow, though the tendency is the same, and the current is, as it were, only waiting for a path along which it can travel.

The annexed diagrams may help to make this clear. Fig. 1 shows an open circuit, the coil *C* being the conductor, which moves in a magnetic field. In this case, no current flows, but the two ends of the conductor *A* and *B* are at different potentials. In other words, there is a pressure or "voltage" there, waiting to urge the current through the circuit, which happens when the circuit is closed, as in Fig. 2. This voltage exists so long as the conductor continues to move through and cut the magnetic field. In Fig. 2, the part *A M B* is called the external circuit, *M* representing a "make and break." If the terminals *A B* were connected by a short thick wire, shown dotted at *S*, the coil *C* would be said to be "short-circuited."

We are supposing the coil *C* to be moving and the current to be flowing (Fig. 2.). Now let the circuit be suddenly broken at *M*. The current will make a sort of dying effort to continue, and in so doing will cause a spark to pass at *M* at the instant that the circuit is broken. This is the method of the low-tension magneto, which we are now in a position to consider rather more fully.

We may first turn our attention to the field magnets, in the neighborhood of which our conductors of electricity will be caused to revolve. These magnets are usually of the "horseshoe" type, and are constructed of special steel. This is not so readily magnetized as iron, but is capable of retaining its magnetism almost indefinitely. The "horseshoe" shape is convenient on account of the ease with which the conductors may be arranged to rotate between

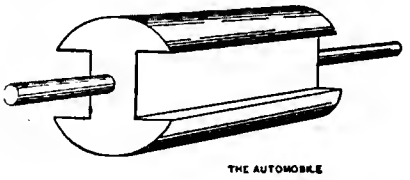


FIG. 4.—SKETCH OF THE ORDINARY H ARMATURE AND ITS SHAFT.

the poles in the strongest part of the magnetic field between them.

This field is clearly shown in Fig. 3 and it will be instructive to consider how this diagram is obtained. A field magnet, carrying cast-iron pole pieces, is placed in a horizontal position. A piece of paper is laid upon it and iron filings are sprinkled upon the paper. These iron filings arrange themselves roughly along the magnetic "lines of force" and when the paper is gently tapped the diagram at once becomes more clearly defined.

The iron filings, under these conditions, have become temporary magnets, and, acting like a number of small compass needles, arrange themselves in rows along the lines of force. The diagram is obtained from a photographic negative, showing the iron filings as white lines on a dark background.

It is a well-known fact that other metals do not resemble iron in respect to its magnetic properties. Iron has the peculiar faculty of itself becoming magnetic when placed in a magnetic field. Were a piece

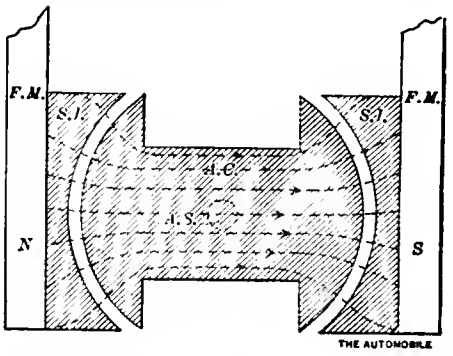


FIG. 6.—SHOWING LINES OF FORCE BETWEE MAGNETS AND ARMATURE. ARMATURE IN HORIZONTAL POSITION.

A C, armature core. S I, soft iron pole pieces.
A S, armature spindle. N, north pole of magnet.
F M, field magnets. S, south pole of magnet.

laid between the poles of the magnets, the magnetic lines of force would be considerably distorted and would no longer be practically straight as they are in Fig. 3. The iron may be said to be a good conductor of magnetism. In other words, the lines of force will pass much more readily through iron than through any other substance. It follows that in order to make the best possible path for the lines of force

it is advisable to fill the greater part of the space between the field magnets with iron. It is, of course, necessary to leave sufficient room for the coil in which the electric current is to be generated. We can best effect our object by winding this coil upon a soft iron core, which may be of the shape shown in Fig. 4. The spindle of the core runs in bearings and the size of the core is such that it may be rotated between the poles of the field magnets without actually touching them. The air gap between core and magnets should be as small as possible.

Fig. 5 shows an "iron filing" diagram, taken with a soft iron armature coil placed between the poles. The air gap is greatly exaggerated in order to show more clearly the distortion of the lines of force. These no longer pass straight from one pole to the other, but take the shortest course into and out of the armature core.

It is as if the poles of the magnets were the banks of a river and the armature coil

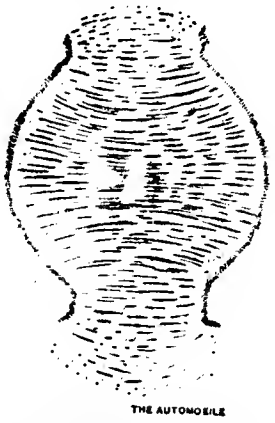


FIG. 3.—FIELD BETWEEN POLES OF HORSE-SHOE MAGNET.

were an island. A man wishing to cross from one bank to the other with the greatest ease would swim across the narrowest part of the channel, walk straight across the island and again swim the shortest possible distance to the other bank.

Suppose the island to be placed as in Fig. 6. The man's course is indicated by the dotted lines, which may be compared with Fig. 5.

Now let the armature be rotated through 90 degrees, and take up the position shown in Fig. 7. The man's course is again indicated by the dotted lines, and it will be easily seen that he would no longer cross at the same place.

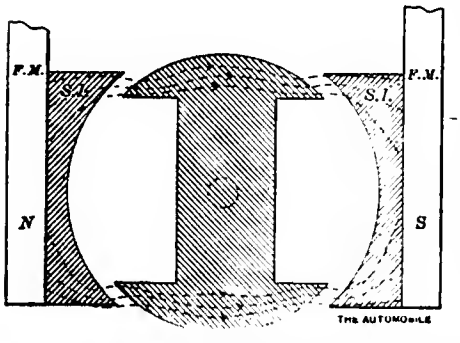


FIG. 7.—SHOWING LINES OF FORCE BETWEEN MAGNETS AND ARMATURE. ARMATURE IN VERTICAL POSITION.

Just as a man can travel more easily over land than through water, so the lines of force can travel much more easily through iron than through air, or any other medium. Hence Figs. 6 and 7 will give an accurate idea of the change in the distribution of the magnetic field when the soft iron armature core is rotated. Similarly, the pole pieces, attached to the poles of the field magnets, may be regarded as piers stretching out into the water to make the island more accessible.

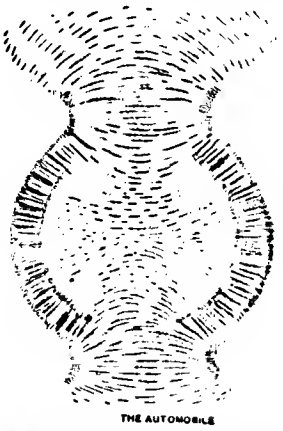


FIG. 5.—ARMATURE HORIZONTAL. ALL LINES THREADING THE COIL. ZERO POSITION.

GENERATION OF THE ELECTRIC CURRENT.

The whole magnetic portion of a simple magneto is shown in Fig. 8, and we may now return to the subject of the generation of the electric current. We will consider what happens when one turn of insulated copper wire is wound round the soft iron armature core, and (when the electric circuit has been completed) is rotated between the poles of the field magnets.

Fig. 9 suggests a method of connecting up this wire. One end is attached to the soft iron core. On the shaft is a block of fibre or other insulating material, on the outside of which is a brass ring. To this ring the other end of the wire is connected. Now, if we connect the ring directly with the shaft by means of a conducting wire any current which flows out of one end of the coil will pass directly back through the shaft and the iron core to the other end of the coil. The circuit is complete and the coil is short-circuited. If, however, we wish the current to do some work in the external circuit, say to pass through the coil *C*, we must connect one end of *C* to the brass ring and the other to the armature shaft itself or some part of the machine which is in direct electrical connection with it. The circuit is still closed, but the armature is no longer short-circuited.

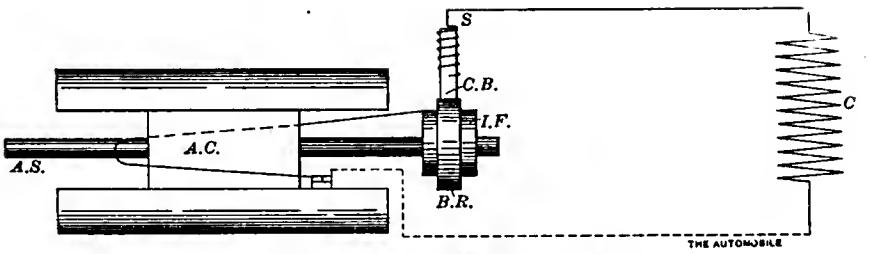


FIG. 9.—ARRANGEMENT OF WIRING CIRCUIT.
A C, armature coil. C B, carbon brush held
A S, armature shaft. by S.
B R, brass ring. I F, insulating fibre.
C, coil in external circuit. S, spring.

The dotted line from the coil *C* (Fig. 9) indicates a connection through the frame, or, as it is commonly called, "grounded."

As we have already stated, the current is generated by the rotation of the armature coil in such a way as to cut the lines of force. It has also been shown that these lines of force may be fairly accurately represented by a number of parallel straight lines passing from pole to pole of the field magnets.

In Fig. 10, the path of a conductor forming a part of the armature coil is indicated by the dotted circle. When the conductor is in the position *A*, it is traveling vertically upwards, and its motion may be represented by the line *A a*. It will be seen that *A a* cuts the horizontal lines which represent the lines of force. When the conductor has reached the point *B*, its position is shown by the line *B b*, which, although of the same length as *A a*, cuts fewer horizontal lines.

The rate of cutting lines being reduced, a smaller current now flows along the conductor. When the point *C* is reached, the conductor itself is moving horizontally, and,

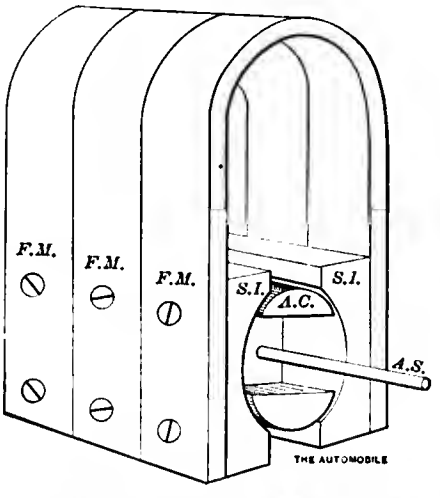


FIG. 8.—ARRANGEMENT OF ARMATURE BETWEEN MAGNET FACES.
A C, armature core. A S, armature spindle.
F M, steel field magnets. S I, soft iron pole faces.

as may be seen from the line *C c*, is simply gliding through the lines of force without cutting them. At this point no current flows and we have reached a "zero position." As the rotation continues through the points *D* and *E*, the conductor again cuts the lines, at first slowly, and then more rapidly, and the strength of the current rises. But now the lines are being cut downwards instead of upwards, with the result that the current flows in the con-

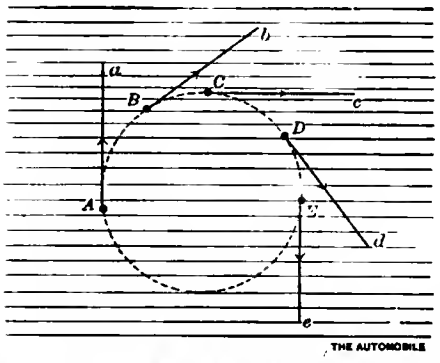


FIG. 10.—THE LINES OF FORCE IN RELATION TO THE CUTTING COILS.

ductor in the opposite direction. By the time that the point *E* is reached, the lines are again being cut at the maximum rate. Hence the points *A* and *E* give "maximum positions."

It is clear that in one revolution the current rises twice to a maximum and falls twice to zero. Also it is twice reversed in direction, *i.e.*, at each zero point. A current of this type is known as an alternating current. In practice, a large number of conductors forming a coil are used, but the reasoning remains the same.

(*To be continued.*)

AUTOS IN INDIANAPOLIS CAMPAIGN.

INDIANAPOLIS, Nov. 4.—The most sensational municipal campaign this city has ever known, with automobiles as the sole means of transportation for the mayoralty candidates, closed to-night. Each of the candidates of the two leading parties claims to have broken the record for "whirlwind" campaigning.

In all kinds of weather. at times through rain and mud, Mayor John W. Holtzman and his opponent, Charles A. Bookwalter, have gone about the city in autos, speaking at from four to ten minutes in a single night and in as many different parts of the city. Besides the night meetings, each candidate held a great number of noonday meetings in shops, in which automobiles played a prominent part.

Throughout his campaign Mr. Bookwalter, the originator of automobile campaigning in Indianapolis, used a Marion touring car. To-night he estimated that he had covered more than 1,000 miles without a puncture and without missing a single one of his engagements to speak.

Mayor Holtzman used a number of different machines in his campaign, and his mileage equaled that of Mr. Bookwalter.

Reo Wagonette Wins Economy Test.

SEVEN out of the nine machines that started from New York in the economy contest of the New York Motor Club went through the six days' running, and all finished in good condition. As reported last week the cars were started on Monday morning, October 30, for Philadelphia, a distance of 90 miles, and returned to New York on Tuesday. On Wednesday they went to Albany, 150 miles, returning on Thursday. Friday's run was from New York to Southampton, Long Island, 101 miles, and the return trip, the last of the run, was made on Saturday.

The total distance covered by the cars is not far short of 700 miles. The object of the contest was to see how much cheaper passengers could be carried by automobile than by the railroads for the same trips. As a result, the car making the most expensive run took its passengers through at a cost of $4.58 per passenger, as against the railroad fare of $14.53. This includes only actual operating expenses, wear and tear, insurance, and such items not being figured in the totals.

The practical nature of the event is emphasized by the fact that the winner is a commercial car—the Reo, a ten-passenger wagonette. This machine carried its full complement of passengers, of an average weight of not less than 150 pounds each, the entire distance—approximately 700 miles—at a total cost of $29.30. This figures out at $2.93 per passenger; the railroad fares for the same trips would aggregate $14.53 per passenger. The total cost per mile for the wagonette was 42.9 cents. The figures given are not merely for fuel consumption, but all operating expenses, such as the cost of gasoline, lubricating oil, repairs (materials used and time occupied), road tolls, ferriage and even fines for speeding. The latter item, fortunately, did not figure in the total of any of the competing machines.

As an evidence of the strictness with which expenses were charged, it may be noted that the winning car was charged $2.25 for the time occupied by passengers in walking up a hill on the road to Albany, the clutch of the car slipping so that the full power of the engine could not be used. The wagonette has a double opposed cylinder motor of 16 horsepower.

Second honors were won by a Reo runabout of 8 horsepower. This little machine carried no less than four passengers or else ballast sufficient to make up a weight equal to that of four passengers of 150 pounds each at a total cost of $13.54, or $3.38 1-2 per passenger for the whole run. This car was charged $7.9 1-2 for gasoline and 25 1-2 cents for lubricating oil, which were the lowest total figures made in the contest. The total cost per mile was 40 3-5 cents.

A Compound gasoline car of 15 horsepower got third place. This car carried five passengers at a total cost of $18.62 7-10, the gasoline costing $10.87 1-2 and lubricating oil $2.12. The total cost per passenger was $3.72 1-2, and the total cost per mile 54 3-5 cents.

The Wayne 20-horsepower car, carrying five passengers, was fourth, charged with $12.40 3-4 for gasoline, $2.10 for lubricating oil, and a total cost of $19.81 1-2; total cost per mile, 58 cents; total cost per passenger, $3.96 3-10.

Next to the Wayne came the Olds runabout of 8 horsepower which carried four passengers. This car shows a total cost of $15.86, and a total cost per passenger of $3.96 1-2, or only one-fifth of a cent per passenger more than the Wayne. The Oldsmobile used $10.35 3-4 worth of gasoline and 42 cents' worth of lubricating oil. Sixth was another Compound, also of 15 horsepower, though carrying four passengers only. Gasoline cost $10.34 1-4; lubricating oil, $2.13; total cost, $17.18 1-2; cost per passenger, $4.29 3-5.

The Marmon air-cooled 20-horsepower car was seventh, with a total cost of $22.91 1-2, or $4.58 3-10 for each of the five passengers carried. Gasoline cost $14.82 1-2 and lubricating oil $1.40; cost per mile, 67 1-10 cents.

The two cars that started but did not finish were the Frayer-Miller 24-horsepower air-cooled car and a 15-horsepower compound, the third Compound entered. The Frayer-Miller car unfortunately stripped a gear in starting on the third day's run, from

ONE OF THE TOURING CARS AT A PICTURESQUE POINT ON THE HUDSON RIVER IN LAST WEEK'S ECONOMY CONTEST.

New York to Albany, and was forced to abandon the contest. Repairs were effected in time to join the run unofficially during the last two days' trip from New York to Southampton and return; the machine ran, during the first and two last days of the contest, about four hundred miles, at a cost of $6.00 for gasoline and 55 cents for lubricating oil. Having missed the Albany run, however, the Frayer-Miller was not counted among the contestants.

Transmission troubles assailed the third Compound car. On the way to Albany the transmission gave out, and after a good deal of delay was replaced by a new one that had been wired for. A fresh start was made in the dark, but the car ran into a ditch and broke an axle, putting it out of the contest.

On the whole, mechanical troubles were remarkably infrequent, there being no mishaps of any consequence to any cars except, as already mentioned, the Frayer-Miller and the Compound; and even tire troubles were only occasional.

The figures given, while probably correct, may be slightly changed when the final official report is made up. This report, which will be issued in pamphlet form, will be very complete, covering every available detail of interest in connection with the test.

In charge of the run were E. T. Fitch, referee, who accompanied the contestants, driving a White steam car; W. J. R. Moore, chairman of the technical committee; and A. B. Tucker, secretary of the New York Motor Club. There were five ladies among the passengers, three of whom rode in the Reo wagonette and two in other cars. Only one case of personal injury was reported. A newspaper man who was riding in the Reo runabout as passenger stood up just as the machine was rounding a sharp bend in the road, and was thrown to the ground. His injuries, though painful, were not serious, and he was able to go up by train. For the remainder of the run the car carried sand ballast in lieu of two passengers, to make the load required by the rules.

Factory Experts View Customers' Cars.

SYRACUSE, Nov. 4.—A system of inspection of customers' cars by factory experts, adopted by the Franklin Manufacturing Company when it first started building automobiles, has been continued since with great success. There are now eight skilled men on the road representing the Franklin concern, which is thus able not only to give valuable assistance to customers, but to closely watch the cars in active service with a view to betterment in design or construction.

"We have made it a rule to inspect every car sold after it has been in use by the owner," said H. H. Franklin, in response to an inquiry. " We endeavor to do this in conjunction with the dealer selling the car. The object at the start was two-fold—to satisfy the customer and to gain information for ourselves.

"A four-cylinder air-cooled car was a new venture. Dealers and motorists said it would not go. Prejudice was everywhere. We knew the car would go, and spared no expense to so demonstrate. This perhaps in a measure accounts for our rapid growth.

"By keeping in close touch with the cars in this way, we gained a great deal of information quickly—that is, we found out without delay just how the cars were performing, and where improvements could be made. It brought us in close touch with the owner, and this personal relation continues to this day.

"Probably we are in personal correspondence with more owners of cars than any other manufacturer, and perhaps than all other manufacturers put together. In some measure this has brought about a condition hard to contend with. It has perhaps made the owner bring his troubles to us when he should have taken them to the dealer. About the only harm in this is that it causes delay because we invariably refer all complaints to the dealer, for the reason that the dealer is close at hand and can give prompt attention.

"The need for this work is a great deal less than formerly," continued Mr. Franklin. "Not only do the dealers and general public understand gasoline cars much better, but cars are better made, and purchasers have correspondingly less trouble.

"To follow out our policy costs a great deal of money. In some cases it might be said that it has cost more than the car was worth. For example: A man in North Dakota goes to Minneapolis or Chicago and buys a car. He is a long way from the dealer, and must depend largely upon his own resources to make repairs and adjustments. Distance, however, made no difference to us. We hunted out these cars and gave them exactly the same attention as that given cars close at hand. As a matter of fact, we gave more attention to cars remote to the dealer than to those near the dealer, as the dealer would look after such cars.

"I recall one special case which occurred before we had many cars out. A lumberman in Mississippi bought a car in Chicago. He had fairly good success with the car, and one day was surprised to receive a call from one of our experts. It is needless to say that the Franklin car stands high in that vicinity, and that we have made numerous other sales there.

"Many amusing instances have occurred. We once sent a man from Syracuse to a small town in Pennsylvania to fix a car which the owner wrote was absolutely no good, and which he said he would sell for old junk unless we made it right. In 'fixing' the car a repair man had taken the float from the carbureter and in some way it had been overlooked and no one thought to examine the carbureter again.

"In many cases we find that some repair man has attempted to make 'improvements.' He has 'improved' on the timing of the engine and in certain adjustments. In such cases we feel compensated for our trouble in that we not only straighten out the owner, but we also have the opportunity to set the repair man right."

REO WAGONETTE AND RUNABOUT FINISHING FIFTH DAY'S RUN IN ECONOMY TEST AT SOUTHAMPTON, LONG ISLAND.

Use of the Motor for Braking.

By RENE M. PETARD.

THE advantages to be gained by using the motor of a gasoline automobile as a brake, and the most advantageous method of obtaining a braking effect from the motor are subjects in which designers and automobilists are greatly interested. It is possible to use the motor as a brake, and to handle it in such a way that any desired braking power may be applied without altering the regular construction of the motor and without using the ordinary brakes. In order to do this the delivery of power from the motor must be stopped, but the motor must remain connected with the driving mechanism by means of the clutch, so that the braking effort will be transmitted through the driving system. This is a simple matter, as it is merely necessary to switch off the ignition current and so stop the explosions, while leaving the clutch engaged and the gears in mesh. Under these conditions it is now necessary to produce in the engine a resistance to the rotation of the crankshaft which resistance will be communicated to the rear wheels through the driving system.

Coasting Down a Grade.

If the car is permitted to coast down a grade with the engine in running condition and the clutch and high gear engaged, but the ignition current cut out, it will be found that the speed will be somewhat retarded by resistance set up in the engine. The braking effect will be very greatly increased, however, by engaging the low gear, as the engine must be driven by the car at a higher relative speed and the internal resistance is multiplied accordingly. If the lowest gear is used and the hill is not excessively steep, the car is apt to be brought almost to a standstill by the motor's resistance.

Granting that the engine actually produces the braking effect described (and proof is readily obtained by automobilists), it remains to discover the cause—to ascertain what takes place in the cylinders to produce such retardation. Probably the first explanation that would occur to most persons would be that the resistance is caused by the fact that power is required to compress the charges of gas that are drawn into the cylinders in the usual way. It is true that power is required to compress the air; but at first glance one would suppose that the energy expended in compressing the charge is given back by expansion on the down stroke of the piston—the stroke that would be the power stroke if the charge were ignited.

The friction of the rotating and reciprocating parts and of the air in its passage through the valves is a factor that is not of great weight, because it is usually brought down to the minimum by good workmanship, and is not sufficient to account for the resistance. Therefore it is necessary to go deeper for the explanation.

Ignition Switched Off.

Let us suppose that the car is running down grade, the motor, with ignition current switched off, being driven by the car. Each piston on its suction stroke will draw in a charge of gas, and this charge will be compressed on the following up stroke; the compression of the charge will absorb a certain amount of the energy that drives the motor, and the energy so absorbed will manifest itself in the form of heat; consequently the compressed charge will be heated to a degree depending upon the amount of compression. Now, if the compressed charge was allowed to drive the piston down again, the heat stored in the charge would be expended in doing this work. As the engine is being driven by external means, however, the heat is not so expended; the charge merely follows the piston, which is pulled down by the crank and therefore does not require to be driven and in the exhaust stroke the charge is expelled into the atmosphere.

Thus it will be seen that energy has been absorbed to aspirate the charge, to compress it and to overcome the frictional resistances set up in the motor, but that, theoretically at least, none of this power has been returned to the crankshaft.

A fact that goes to strengthen this theory is that at slow piston speeds the braking effect is very slight. This is quite in accordance with our hypothesis, because the slowly moving piston is unable to run away, so to speak, from the expanding charge, which is therefore permitted to expend a good deal of its stored energy in driving the piston downward.

The heat retained in the walls of the cylinder, after the motor has been developing power in the usual way, doubtless has a disturbing influence on the cycle of functions described, but nevertheless the theory seems to fit the requirements better than any other the writer can think of.

Builders Instruct Customers.

Several firms, including some in England, take pains to inform their customers as to the best way of braking with the engine. In some cars, such as the older Renaults with automatic inlet valves so arranged that the tension of the valve springs can be regulated from the driver's seat, a very effective braking resistance is obtained by placing the valve regulating lever in the position which gives the maximum spring tension, and then switching off the ignition current. The resistance developed, as already described, is considerably increased by the great friction caused by the charge passing rapidly through the restricted passages. The English "National" car goes a step further in this direction, for when the lever governing the lift of the inlet valves is placed in the position which gives no lift at all, the valves are held positively on their seats. Theoretically, the engine should be working against a vacuum. Practically, however, this is probably not the case, as the exhaust valve is doubtless caused to open slightly for a brief period.

Drawback to Engine Braking.

Motors whose valves are arranged as described give excellent results when used as brakes. There is, however, one great drawback to the use of the engine as a brake. The partial vacuum produced in the cylinder sucks in lubricating oil with great rapidity, the oil working past the piston rings and collecting on the top of the piston. When the ignition is switched on the exhaust will be smoky and evil smelling and the combustion chambers and spark plugs will soon be covered with soot.

This trouble is avoided in the English "Rover" cars, whose engines constitute very excellent brakes, owing to the special character of the valve arrangement. By means of a special pedal placed beside the brake pedal, a set of auxiliary cams can be slid under the valve lifters. The result of this is that the piston draws in a full charge on the down stroke and compresses the charge on the up stroke. When the piston is nearly at the top of its stroke the exhaust valve opens and the compressed gas escapes into the muffler; this cycle of operations is repeated at every stroke, the motor working as an ordinary air compressor.

Another method of producing considerable resistance in the motor, and a rather crude way, is to close both the inlet and the exhaust, while a small relief cock on top of the cylinder is opened. Thus the cylinder can be filled and emptied only through this small aperture, and it will at once be seen that the resistance set up is very great—so much so that the use of the low gear in braking is almost certain to stall the car even on a hill.

The simplest way to make the motor available for this form of resistance is to provide a throttle that closes tightly, and a valve of some sort to close the exhaust outlet, so that while the valves are not prevented from moving, their opening and closing have no effect. This form of engine brake is used on many European motorcycles, though in a simplified form. A tightly-closing throttle prevents the admission of gas, but the exhaust valve is permitted to perform its usual functions. Thus there is a braking effect during three strokes, and the exhaust valve opens in the regular course during the fourth.

Advantages of Engine Braking.

One of the advantages of braking with the engine is that use is made of the most elastic of fluids—air; and the retardation

is gradual and smooth unless a low gear is used, when the full possibilities of the system become evident from the powerful braking effect produced. In fact, the lowest gears should be used only with extreme caution, and the novice should avoid them altogether until he has become familiar with the working of this method of braking.

It is most comforting to the driver on a long, steep grade with the engine used as a brake, to know that he has entire control of the car without resorting to the ordinary brakes; that nothing is wearing out or overheating, and that he can continue to coast indefinitely without fear of trouble from his brake. Then, if an emergency arises, the ordinary brakes will be cool and in proper condition for immediate use.

Interlocking Devices.

A point that many automobilists will at once think of is that many cars are fitted with an interlocking device between brakes and clutch, so that when the ordinary brakes are applied the clutch will be withdrawn, making it impossible to use the engine as a brake and the ordinary brakes at the same time. The writer believes that the growing popularity of engine braking will lead to the discontinuance of the practice of interlocking the clutch with either hand or foot brake. Many manufacturers will say that they use the interlock because others do it; others will say that everyone does it because it has been done ever since automobiles have been in practical use.

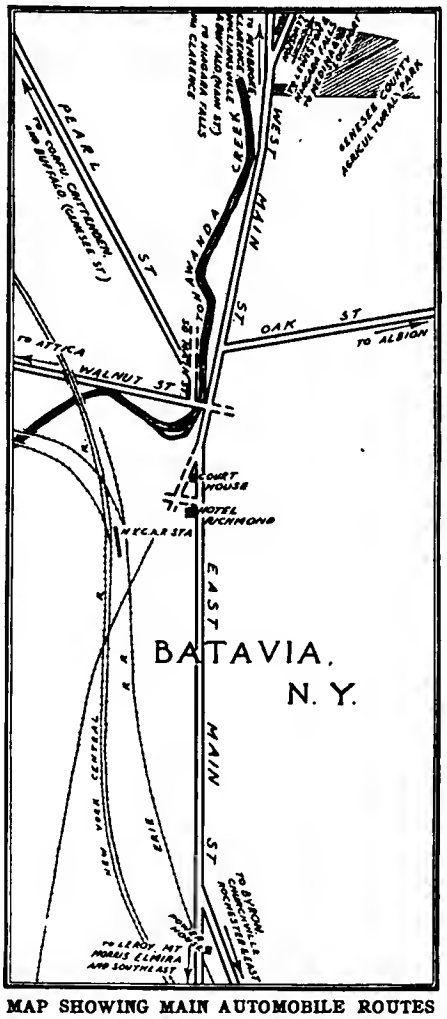
This takes us back to the first builder to use a brake interlocking with the clutch. Levassor, in one of the early Panhard & Levassor cars, was out one day and was driving on third speed at a dangerously high rate of about twelve miles an hour, when he got into a corner, lost his head for an instant, and applied his brake forcibly without withdrawing the clutch. The car car came to a standstill, but his gears were thoroughly ground up. As a result of this experience, Levassor, to save his customers from similar experiences, fitted all his cars with an interlock which withdrew the clutch when the brake was applied, and the practice has been continued to this day. The writer sees no necessity for it now; and even if a manufacturer considers it necessary, why cannot he place the interlock between the gear shifting lever and the clutch?

Two distressing fatalities, resulting from automohile accidents, occurred in Europe during the past season; in both cases expert evidence showed that the brakes had been set as hard as possible, but that they were not in proper condition to hold the car. In both cases, also, the clutches had been automatically withdrawn by the setting of the brakes. Who can say that these accidents would not have been avoided if the clutch had been allowed to remain in engagement and the engine had been used as a brake? Surely, this is enough to make any man think twice before deciding against the use of the engine as a brake.

Road Directions at Batavia, New York.

By ROBERT BRUCE.

THE attractive little city of Batavia, N. Y., located about midway between Rochester and Buffalo, has the special importance of being located on the two principal trunk-line highways between the Hudson river and the great lakes. The main-traveled route from Albany, Utica, Syracuse and Rochester practically due west through central and western New York state, comes directly into Main street, Batavia. So, too, does the other line, across the Catskill mountains, through Binghamton, Elmira, Bath and Mt. Morris, the two forming an angle near the



MAP SHOWING MAIN AUTOMOBILE ROUTES THROUGH BATAVIA, N. Y.

street railway powerhouse, indicated on the map. They are one through the business center of Batavia, but a short distance the other side of the city, two much-traveled routes to Buffalo divide.

Aside from being the largest place between Rochester and Buffalo by one route, or between Elmira and Buffalo by the other route referred to, with best accommodations for men and automohiles, Batavia is a local center for various fine runs off of these main trunk lines, stretching East and West. Among these may be mentioned Albion and Lockport, farther north, and the Niagara frontier, north-by-west, the latter of which may be reached by either Lewiston or Niagara Falls, if desired, without the necessity of going via Buffalo. All things considered, Batavia is of more importance from an automobile touring standpoint than its population and location would indicate at first glance.

The accompanying diagram will give the tourist who is interested a practical idea of the different routes passing through Batavia in the principal directions. Naturally the most traveled one is that directly between Rochester and Buffalo, to which Batavia stands somewhat in the relation of a half-way house. In connection with this run it is vitally necessary for the tourist to decide before moving west through the business center which one of the two routes he wishes to use to Buffalo. Unless he does this, the result is likely to be an error, to be remedied by going all the way back.

En route from Rochester, over the most direct line via Churchville and Byron, the tourist comes, as already stated, directly into East Main street, which is followed through the business center, past the court house, the park and the Richmond Hotel. Continuing west without making local inquiries, one's natural inclination is to continue from East Main street through West Main street (the court house the dividing line between them) and out into the country that way. This depends altogether upon what route it is desired to use the balance of the way to Buffalo.

As a matter of fact, the principal old line of travel leaves West Main street two blocks beyond the Richmond Hotel, turning left there to cross the Tonawanda creek bridge. Make immediate right turn (for the moment on South Main street), then bear left into Pearl street, which is the beginning of the line straight through Corfu, Crittenden and other minor points into Genessee street, Buffalo. This exit from Batavia, easily seen from the accompanying sketch, is a very difficult one to describe in type alone; tourists on the endurance runs to Buffalo in 1901 and to Buffalo and Pittsburg in 1903, will easily recall this point.

The other through line exit to the West, which many tourists have come to prefer on account of a considerable stretch of new state road from Clarence to Williamsville—excellent—is via West Main street, keeping straight (or a trifle to the left), where the Lewiston road branches off to the right. This line runs through Pembroke, Clarence and Williamsville into Main street, Buffalo. Since the state road already referred to was built, considerable travel has shifted from the West Main street-Pearl street route into the West Main street route direct via Pembroke and Clarence; but as this is a com-

paratively recent thing, practically all guidebooks and route cards mention only the route which the endurance runs of 1901 and 1903 followed.

Next in importance to the Rochester-Buffalo routes through Batavia is the connection between Batavia and Leroy, to the south, which is the route used to enter Batavia from the Catskill mountains across the "Southern Tier," via Binghamton and Elmira. This comes nearly straight into East Main street, whereas it will be noticed that the Rochester road enters the same thoroughfare at more of an angle. Traveling west this will take care of itself, but traveling east through Batavia it will be necessary to choose between the road to Byron, Churchville and Rochester, and the one to Leroy, Mount Morris, Batavia, Elmira, Binghamton, etc. In either case keep out East Main street, from center of the city until the street railway powerhouse is seen just ahead, alongside the Erie R. R. tracks. The left turn at that point is the beginning of the run to Rochester, while straight ahead, across the Erie tracks, is the way to Leroy and points beyond.

Walnut street and Oak street, as shown on the diagram, are beginnings of local runs to Attica and Albion, of little interest, probably, to the through tourist. The Lewiston road, used as the beginning of the run to Medina and Lockport, as well as to Lewiston and Niagara Falls, might at any time be of useful interest, suggesting the possibility of a good cross-country trip, varying the better-known trip via Buffalo. It is also possible to take the West Main street route to Clarence and thus run to Niagara frontier points still another way.

The Pennsylvania Railroad Company has recognized the need of transporting automobiles from one city to another, and has for this purpose provided cars of a special pattern. Recently it took up the matter of preventing any danger from fire by adding a special paragraph of instructions to shippers. This notice is intended primarily for the shippers of gasoline autos and was sent out by Charles Watts, general superintendent of passenger transportation on the lines west and by C. M. Shaeffer, acting in the same capacity for the Pennsylvania Railroad Company. The notice follows:

"Horseless vehicles operated by electricity offered for shipment must have their terminal wires, *i.e.* wires connecting battery with motor, disconnected. Vehicles operated by gasoline or naphtha must have tanks emptied, the tank cover or plug removed and packed separately, and the sparking wire detached."

That the automobile is booming in Syracuse is inferred from the fact that the Secretary of State has issued 300 licenses to residents of this city. In several cases some citizens have taken out more than one license.—Syracuse *Journal.*

Unfavorable Newspaper Influence and How to Counteract It.

EVERY person directly interested in automobiles and automobiling probably is well aware that there is a great deal of unfavorable comment in the newspapers throughout the country regarding the use and abuse of the machines in the public highways. It is unlikely, however, that more than a very few have any real conception of the great volume of adverse criticism there is in the aggregate. Only one who keeps in touch with popular sentiment and local news in all sections of the United States by means of correspondence and reading of press comment is in position to estimate the prodigious amount of matter derogatory of the automobile and its owner that is printed every day of every week during the driving season.

It is certainly not overstating the fact to say that one-third of the space devoted in the daily and weekly press to the subject of automobiles is filled with accounts of accidents caused directly or indirectly by automobiles, to arrests and trials for excessive speeding, to civil suits and criminal prosecutions against owners and drivers of cars, criticism in the editorial columns and in communications from readers, and to suggestions for and discussion of laws and ordinances aimed at the regulation or repression of automobiling.

Almost anyone keenly interested in automobiling would be staggered if he could have the opportunity to examine one week's accumulation of press comment on the subject and note the nature of the thousands of items published and the state of public feeling they reveal. The matter is a serious one, for the newspapers mold popular opinion, and also reflect it, and a continuance of such a state is almost certain to result in a crystallization of unfavorable sentiment that will bring about drastic action sure to have an unwelcome—and unnecessary—effect. Evidences that this process has already begun are not wanting. A news report from New Brunswick, N. J., on August 28 last, told of the formation of the Highway Protectors' Association for the purpose of "protecting the highways against encroachment by automobiles." The methods by which the society purposed to accomplish this were explained in the report as follows:

> "The Society will endeavor to have enforced the present automobile laws, and if these are found to be insufficient it will endeavor to have other laws passed. It does not desire to oppress those who own and use motor cars or to deprive them of their rights, but it means to see that farmers are protected and that automobilists do not endanger life by reckless driving. It will keep a record of the violations of the law and prosecute offenders. It will also organize a press-clipping bureau, and keep a record of all the accidents of the state, and the number of the machines figuring in them."

Early in September a similar movement was started in North Branch and the intention was announced of endeavoring to extend it throughout New Jersey. Under the name Anti-Automobile Association of North Branch a permanent organization was effected and a set of resolutions adopted declaring that, as citizens of the commonwealth, the members had built and maintained the public roads, from the free and safe use of which they were deprived "by reason of the manner in which some automobilists operate and run their machines, especially on the country roads, in utter disregard of law, or the right of the public to use the public highways, endangering the lives of those with whom they come in contact." They adopted resolutions in part as follows:

> "That we unite to form an association to act in accord with other associations formed, or that may hereafter be formed, in this state having the same objects in view, viz., self-protection and the restoring of our rights to the free and reasonably safe use of our public roads.
>
> "Resolved, That as occasion requires we will adopt legal means if necessary to abate the evils above set forth and to obtain our just rights."

A fortnight later a mass meeting was held in Somerville, N. J., at which letters were read from several neighboring towns asking for copies of the resolutions of the North Branch Association and expressing the intention of forming co-operative associations. Before adjourning the meeting it was decided to oppose every candidate for the state senate or assembly who owned an automobile or who had ever been known to ride in one.

That the antagonism among the farming classes revealed by such public action is not in any sense local or confined to one section of the country is clearly proved by an almost identical movement that originated simultaneously in Mexico, Mo., where it was started by two judges, one of whom was recorder of the county. They circulated a petition calling a mass meeting in the court house for September 23—the day, by the way, of the elimination race for the Vanderbilt cup on Long Island. The movement was supported by business men, farmers and stockmen, and 1,000 men, women and children attended the meeting. The extreme element talked of boycotting the newspapers that favored automobiles and proposed resorting to pitchforks and firearms, if necessary, to make drivers of the machines use more caution in passing teams on the road. A committee of fourteen citizens appointed for the purpose

drafted a long resolution, of which the principal theme was a demand that all automobile owners be required to give bond before being allowed to operate their cars, so that all claims for damages or injuries might be settled promptly. This document is to be presented to the next Legislature (in 1907) with the request that it be enacted into a law.

Expression of animosity of drivers of horses on the roads toward the drivers of automobiles does not always take such peaceable and moderate form. Too many incidents have occurred in which individuals have sought to apply a cure in illegal and violent ways, as by threatening the occupants of a car with guns, and even shooting at the tires in the effort to cause punctures. A recent example of this is reported as follows in a Wisconsin newspaper:

"There is reason to believe that farmers shot at Richard T. Robinson and his family a week ago while riding in an automobile near Racine. The party was ordered to stop, and upon refusal were shot at. An investigation has been going on and the authorities now believe that farmers, who had declared that they would have revenge on autoists because of runaways and accidents, mistook Mr. Robinson's touring car for that of one owned by another manufacturer of Racine who had defied the farmers. It is said that the shots were only fired for the purpose of ruining the tires."

While the most bitter feeling against automobilists exists in the rural sections, the sentiment is not by any means non-existent in the large cities, where automobilists have not only been the targets frequently of mobs of hoodlum children, with their heterogeneous collection of objectionable, if not positively dangerous, missiles, but have sometimes been threatened with violence after unavoidable accidents. A case of the latter sort was reported in the New York *Tribune* for October 3 in part as follows:

Joseph Stande, an Austrian, "was running his machine, containing two women besides himself, in front of Proctor's Theatre, when William Lowery, twelve years old, of No. 235 West 121st street, confused by a car, got in his way. The boy's left foot was run over when he fell. Stande stopped, jumped out and asked the boy if he was hurt. The latter did not seem to think he was, so Stande started off." Then the crowd that was leaving the theatre got excited and started a wild chase after the machine through 125th street that ended at First avenue, where Stande was arrested by Bicycle Policeman Whitman. "The usual lynching was threatened, when the man was caught, and several policemen were required to restrain the crowd. Dr. Oltmer, of the Harlem Hospital, found that the boy's foot was slightly sprained."

Unreasoning as such action was, it is clear that it reveals a condition of popular feeling that must be reckoned with. The foregoing are given as samples of some of the news items that are appearing in the papers. In addition to the reports of accidents and arrests for speeding that are printed in the news columns, nearly every paper in the country feels called upon to give frequent expression in its editorial columns to the opinion of the editor or his assistants on the situation. Naturally, these vary as much in sentiment as the mentality of the writers and the conditions that exist in the various localities differ. Nevertheless, whether the writers are qualified to mold the thought of the community or not by reason of superior wisdom or training in thinking, a majority of the residents of a community find it easier to get their ideas from such editorials than to analyze the situation for themselves. With such a condition prevailing, it is easy to see the effect on the public mind that such a rabid editorial expression as the following from such an influential paper as the Chicago *Tribune* would have:

"The automobile runs 'wild' over no fixed track—often on an unfamiliar road at a high rate of speed; its machinery is much more liable to derangement than that of the locomotive; there are no flagmen nor tower men along the way, nor any time tables. The management of such a machine requires a much greater degree of skill than that of a locomotive. Yet we find these terrible engines of destruction, capable, as one might say, of dealing death from both ends and the middle, often intrusted to the hands of a youth or an inexperienced man who may be by temperament or nervous organization wholly unfitted to discharge the duties even of a driver of gentle and well-trained horses. Of course the abuse of the thing has got to stop."

It might be expected that periodicals of the better sort, particularly those that seek advertising patronage from the manufacturers of automobiles and that are supposed to stand for industrial progress and the development of civilization, would be more temperate in discussing the problem of the use of automobiles in the highways, but note this quotation from *Harper's Weekly*:

"This group of Sunday occurrences related on the front page of a Monday newspaper illustrates most of the characteristic diabolisms of the motor cars. They run over folks, they run down wagons, they scare horses, they dispute with railroad trains and with trolley-cars about the right of way. Sometimes, also, their steering-gear breaks, and they smash into something. The worst habit that the motor car has is to run into railroad trains. . . . The most shameful and outrageous propensity of the automobile is to run away after it has hurt some one. An automobile caught so doing should get the limit of the law, and if necessary the limit should be raised. How much law is applicable to such cases may perhaps become known some time when an automobile that has run over some one and got away is caught. Almost always these sneaking scoundrels escape."

When the editor of a paper has no fitting ideas himself on the subject or wants to strengthen the position that he has taken in preceding issues, he frequently reprints the editorial comment from a contemporary. Thus, a South Bend paper makes this quotation, with credit, from another Indiana newspaper printed in Elkhart:

"Automobilists all over the country are doing more than any laws can do to make themselves hated by the public. The reckless manner in which they drive through the city and country, their apparent disregard of life and limb, the frequency of fatalities and of serious accidents, are causing the public to fear them, and fear always begets animosity. The automobile carefully driven is not an object of dislike, but when men go around corners in cities or in country regardless of what may be coming from another direction, when they go through the streets so rapidly that a pedestrian cannot cross when they are seen a block away, they are taking risks with the lives of their fellows that no man has a right to take. A return wave will come either by the restricted enthusiasm of drivers or from the animosity of the public. When it does, the automobile will be a good and not an evil."

It is quite true that some of the editorials are surprisingly fair minded and judicious, and undoubtedly they have a good influence in moderating the animosity engendered by disagreeable experiences on the road with reckless operators or by reading the less temperate criticism of other writers. Another example of this is an editorial that appeared some time ago in the New York *Sun* under the heading, "Earning Unpopularity." It read as follows:

"In proportion to the number of automobiles now in use, and taking into account their comparative novelty, the accidents for which they are properly to be held responsible are remarkably few. Nor is there more public fear or dislike of a motor car and its occupants when they are behaving with decent and reasonable regard for the rights of other citizens than there is of any other class of vehicles and their users. Such incidents as this described in the news of yesterday give the key to any antagonism that may exist against automobiles and their drivers."

[Here was reprinted a news dispatch from Stamford, telling of "an utterly reckless chauffeur," who ran over a boy and, leaving "him for dead, kept on his devil-may-care course."]

" . . . Stamford's reckless chauffeur was one of a class of motor car drivers who would be dangerous if in charge of any sort of vehicle. . . . They are responsible for whatever spirit of hostility to automobiles and automobilists is manifested by the public, and the interests of the automobilists would be advanced in every way if they would use their influence within their own ranks to suppress such nuisances. . . . The repression of individuals who for their own mistaken ideas of pleasure endanger the lives and safety of every one is an end motorists would find easy to accomplish if they wished to accomplish it."

(*To be concluded*).

The foregoing installment of this article deals only with the existing undesirable conditions. The concluding installment, to be published in an early succeeding issue, will present the suggested remedy.—Ed.

A Tour on the National Pike.

From Pittsburg to Wheeling, W. Va., and Cumberland, Md., in a Runabout.

By CHEVALIER JACKSON.

(*Concluded from page 487, issue of November 2.*)

IT was at Washington that we took to the National Pike. Over some hilly and, in spots, very rough road, we ran westwardly to Claysville, ten miles, and West Alexander, a quaint old town, seventeen miles. Descending the hill there we came upon fifteen miles of perfect roadway along Dickson's Run that carried us across the "pan-handle" of West Virginia and brought us to Wheeling, thirty-two miles from Washington and sixty-four miles from Pittsburg. In the suburbs of Wheeling we were advised to follow the trolley and pavement, winding far around the river hills to the gap through which the creek flows; but it was discovered that the old turnpike, with its excellent foundation and directness, was much the shorter and better route. It mounts the hill and affords a fine view of Wheeling, of the Ohio river and of Bridgeport beyond.

Wheeling has good hotels and supports a garage. A number of automobiles are owned in the city, notwithstanding which the horses, when meeting machines out on the roads in the suburbs, are exceedingly troublesome and stops are necessary as speed will endanger lives of drivers. In spite of our caution, one irate driver of a wagon filled with hogs, shook his whip at us and informed us that if his horse ran away we would have to pay for it. Retorts should be conciliatory for antagonism ultimately harms the automobilist. The teamster will outdo you in profanity, of which he is a past master. The great trouble is that few men know how to drive a troublesome horse. They allow the horse to stop and turn around. They say "whoa" when they ought to urge the animal on, with the whip if necessary, but keep him going, at all hazards. No man can guide a horse that is not going ahead, but swinging around with the driver as a pivot.

From Bridgeport, O., just across the river from Wheeling to Richmond, Ind., the pike is said to be in good condition, but we reluctantly retraced our way the second morning to Washington. From that place eastwardly to Scenery Hill (Hillsboro on the mile posts) twelve miles through a hilly, farming country, the road is good except for water-breakers. Krepps Knoll (twenty miles) is distinguished by a staff erected by the United StatesGeologic Survey. It is the highest point between the Allegheny and the Rocky mountains. For a wonder, the pike does not go over it. Coming out on a hilltop, a beautiful view of the Monongahela river greets one suddenly, and a half mile coast brings him to an ancient covered wooden bridge, with loose, rattling floorboards. It looked unsafe, but carried us safely over the Monongahela into Brownsville, twenty-four miles from Washington and fifty-six miles east of Wheeling. There are good hotels there, and gasoline can be obtained from a physician who uses two automobiles practically all the year round over all kinds of country roads. The birthplace of Attorney-General Knox is two squares from the pike, and the James G.

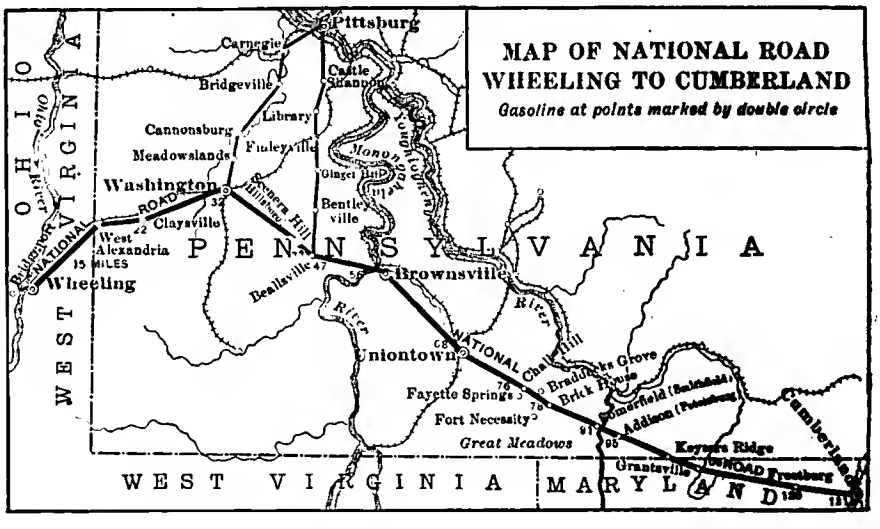
OLD MILE POST ON NATIONAL PIKE.

Blaine homestead is across the river, although only the old well now marks the place where the house stood.

From Brownsville to Uniontown (twelve miles), the pike has a fair surface. The wealth derived from coal and coke is shown in palatial residences as Uniontown is neared. A garage is supported there and good hotels are numerous. We filled our tank and took an extra five gallons of fuel in a can, as no gasoline is obtainable between Uniontown and Cumberland, on the Potomac, five miles south of the Maryland border. Even though the tank were large enough for a sixty-three-mile supply, leakage might not be discovered until the tank was empty. A few gallons in a can might save a long walk, or a night under the stars. The long coasts with the motor stopped save much gasoline, but the equally long low-gear climbs equalize matters. Direct drive could be used much more of the way if the surface were not so rough.

A six-mile low-gear climb through beautiful mountain scenery, over rough stony surface, brought us to the summit of the first mountain, Laurel Ridge. Springs are numerous along the ascent, and the chestnut groves, the clumps of rhododendrons and the profusion of ferns and wildflowers proved so tempting that when we came to Chalk Hill, two miles beyond the summit, we ran the machine into a barn and enjoyed the mountains until evening. A good supper, a moonlight stroll on the mountains, the call of the whippoorwill, the gorgeous sunrise next morning and the delicious morning air, were all so delightful that it was not until afternoon that we wended our way eastward past Braddock's grave and Fort Necessity, to Somerfield (Smithfield on the mile-posts), where the pike crosses the Youghiogheny on a beautiful succession of stone arches erected in 1818.

This and other bridges show governmental thoroughness of structure. They stand to-day practically as good as ever, after nearly a century of neglect. The copings have been loosened by frost in some places, owing to neglect of "pointing," but the arches of all seem solid. Good fishing (bass and speckled trout) and small game shooting are told of near Somerfield. We pushed on into Maryland, through Addison (Petersburg on the mile-posts), and up Winding Ridge to Keyser's Ridge, where we found most excellent accommodations over a general store. Better meals, cleaner



AN ABANDONED TOLL HOUSE ON THE NATIONAL TURNPIKE IN PENNSYLVANIA

linen, or more genial, pleasant hosts, we never met. Their kindness that night on the lonely mountain will be long remembered. They predicted rain on the observation that the cabbage had wilted and that the cats were playing. It rained.

The next morning the sun rose in a clear sky, and we enjoyed the early morning ride through the wooded ascents, lined close to the road with ferns and wild flowers. How any man with a soul could name this paradise Negro Mountain, is more than I can understand. The soil there is sandy, without clay, consequently the road was at its best in spite of the rain during the night.

A rather barren meadow covered with rotten stumps marks "Shades Mill." There is neither mill nor shade now, but the original name was "Shades of Death" because of dense, dark overhanging pine and hemlock trees. But it was commonwealth land, and a pirate sawmill came along and soon only a stretch of blackened stumps marked the spot.

About nine miles west of Frostburg at Stone Farm is a stonewall inclosure, now used as a cemetery, 500 yards north of the pike. A native told us it was "Braddock's Fort," although historic corroboration seems to be lacking.

The next mountain beyond the Negro is Meadow Mountain, and from there on over Little Savage and Big Savage, the worst stretch of road on the pike is encountered. Just over the summit of Big Savage a beautiful valley spreads out, with Frostburg nestling among the undulating meadows. A good coast is spoiled by the rocky roughness of the road.

Leaving Frostburg, eleven miles of smooth surfaced down grade takes the tourist through a grand rock-faced notch in the mountains, through which Will's Creek flows, and on into Cumberland. Just before crossing the bridge a depot of the Standard Oil Company affords the only gasoline supply to be had after leaving Uniontown.

The temptation to push on eastward was almost overpowering, but we put it behind us by heading the car westward, and climbed again the seven mountains, recrossed the Youghiogheny and the Monongahela, and wended our way back along the "old pike" to Beallsville, where we turned north toward a smoky pall hanging in the sky over Pittsburg, thirty-two miles away. Three miles of macadam road brought us to Bentleyville. Thence over wretched clay roads, through Ginger Hill and Finleyville to Library, where a newly macadamized road twelve miles in length brought us quickly out on the Knoxville hilltop, from from which the powerful arc lights could be seen dimly through the smoke, far below, in seething, sizzling, grimy, black, smoky but prosperous Pittsburg.

Having come that day from the blue, thin, crisp air of the Allegheny mountains, we could not help thinking,

"Ye who enter here, leave all hope behind."

Down into the cauldron we coasted, and our holidays were ended.

In the course of a case in an English court the other day one of the counsel said there were four speeds at which motorists traveled. They were: (a) The speed the policeman said; (b) the speed the chauffeur told the magistrate; (c) the speed the chauffeur told his friends in a public house, and (d) the real speed.—Kansas City *Journal.*

STONE ARCH BRIDGE ACROSS THE YOUGHIOGHENY RIVER AT SOMERFIELD, PA., BUILT IN 1818.

Letter Box

Prejudice in the Courts.

Editor THE AUTOMOBILE:

[283.]—I do not believe it is possible for the owner of an automobile to secure compensation for damage to his car from any jury in this part of the country. Mr. Rushmore's case, related in the October 26 issue of your journal, is on a par with one just decided against me, October 19, 1905, by a New York City court.

In June, 1905, my car was being demonstrated in New York City by my mechanic for a prospective customer. While crossing West One Hundred and Eleventh street and Amsterdam avenue a north-bound trolley car hit the front end of my car and threw it around in front of a south-bound trolley, grinding it into a shapeless mass between them. We proved that our car was traveling at the slow speed of four or five miles an hour when crossing the tracks, and that the north-bound trolley was going so fast that it could not stop until it reached the opposite side of the road, and to any unprejudiced mind it was clearly the fault of the nineteen-year-old boy who was speeding his trolley.

We had much difficulty in selecting a jury, four or five men declaring boldly that their prejudices were too great against autos to render a fair decision. Of course we could not challenge the judge himself; but his charge to the jury showed where he stood on the subject when he said: "If the auto got in the way of the south-bound trolley it was guilty of contributory negligence, and you must find for the defendant." And this, in spite of the evidence that the north-bound trolley knocked or forced it in the way of the south-bound car.

R. G. DUBOIS.

New York City.

Another Jersey Legal Experience.

Editor THE AUTOMOBILE:

[284.]—In your issue of October 26 appears a letter from Mr. Rushmore in which complaint is made of the treatment received in a New Jersey court. The writer of this communication has just received a favorable decision in an automobile suit, which decision was rendered by the same judge who decided Mr. Rushmore's case. I was arrested on May 30, 1904, in the outskirts of Chatham, N. J. The constable was a very unprepossessing looking individual who held a club in one hand and a pistol in the other as he stood out in the middle of the road in front of my machine. We went before the justice, who, in a very good-natured way, imposed a fine of $10 on the ground that my speed exceeded a mile in eight minutes.

On the same day and hour another automobilist was arrested by another constable, but the justice said he was in doubt about him, so he let him off with a fine of $5, a very curious way of expressing doubt on the part of a supposititiously judicial officer.

Both cases were at once taken up on certiorari proceedings, being placed in the hands of eminent counsellors, and on October 11, nearly seventeen months after the arrest, the judgment of the country justice was set aside and reversed by Judge Fort. Meanwhile, I have a suit against the constable for false arrest going on, whose prosecution has depended on the decision in the certiorari suit.

I think that the bringing of these two suits had a good effect in preventing the arbitrary arrest of other automobilists by the village of Chatham. This was all under the old law. It does seem possible that the recent arrests in New Jersey might be worth contesting. What the future may bring forth is hard to say, but I think it will be of interest to carry these cases of mine to a finish, and I intend to do so.

T. O'CONOR SLOANE.

South Orange, N. J.

Chain Drive in Cup Race.

Editor THE AUTOMOBILE:

[285.]—In your issue of October 26, I noticed a letter by Mr. W. H. Workman, of the Packard Motor Car Company, headed "Shaft Drive in Cup Race." In this connection it might be stated that the Italian car which made by far the most wonderful exhibition in the cup race was equipped with a double chain drive. This probably proves nothing in favor of the chain transmission, as the skillful and fearless Lancia would undoubtedly have made a similar record with a gear-driven machine if the parts were in good proportion and backed up by a sufficient amount of power.

Both the chain and bevel gear methods of transmission have given our manufacturers and users a lot of trouble, but step by step the difficulties have been eliminated until both styles have made records we may well be proud of.

The Packard touring car, with its bevel-gear drive is a recognized success, and I believe their other production, the commercial car, with its double chain drive is also a success.

I have been told that a certain American racing car which the makers wished to enter in the cup race was found before the elimination trials to be considerably over weight, but they brought same to a point well under the stipulated weight by abandoning the gear drive and replacing it with the double chain. If this is true, it would indicate that the double chain transmission gives greater strength with less weight, and this point should not be passed unnoticed.

A number of years ago our automobile manufacturers equipped their steam cars with bicycle chains and then added extra seats for additional passengers without increasing the size of the chain. This gave the chain drive a "black eye" from the very start, but, notwithstanding the fact. I believe about 80 per cent. of the cars are chain driven at the present date.

The chain and sprockets used on practically all of the earlier model gasoline cars were not correct and suitable for the purpose, and most of the chains were damaged by interference, as but few manufacturers allowed sufficient space for chain clearance. When it was found that chains were not heavy enough for the severe duty, it was in most cases impossible to remedy the difficulty by supplying larger or heavier chains on account of the limited space provided. When the gear drive was presented it was welcomed by many who had been annoyed with chain troubles, but later on many of them were equally disgusted with bevel gear troubles and difficulties with universal joints, thrust collars, weak rear axles, limited power, etc.

Certain manufacturers made their own sprockets and evidently assumed it was only necessary to mill in same the correct number of teeth. If the sprockets were not the right width, not cut to the correct bottom diameter, teeth too straight on the sides and irregularly spaced, sprockets out of line, etc., it was supposed to make but little difference. When some of the same manufacturers commenced to experiment with the gear drive they were obliged to purchase their gears from manufacturers who were expert in this line, and it was necessary to pay a high price for the quality and accuracy required to insure the gears revolving. If bevel gears were cut in the manner some sprockets have been, the result would be astonishing.

I believe both the shaft and chain drive at present on many cars are a success, but imagine the chain will be by far more popular in the future for the following reasons:

Less weight.
Less friction.
Lower cost to manufacture.
Lower cost to repair.
Less time to repair.

Ease of changing gear ratios to suit road conditions for various parts of the country.

Saving on tires by less weight.

More reliable rear axles for rough roads and heavy loads.

In case of an accident, the chain driven car may be pushed off a railroad track or from the center of a road..

W. E. C., Advertising Dept.,
THE WHITNEY MFG. CO.

Hartford, Conn.

What Individuals Can Do to Secure Better Streets and Roads.

Editor THE AUTOMOBILE:

[286.]—I mail you two copies of the Niagara Falls *Record*, just to show you what one enthusiastic automobilist can do in most towns and cities, if he tries, towards putting bad roads into good condition.

Permit me to suggest to all automobilists

in favor of good roads to get up a good roads association (not an automobile club, as people are generally antagonistic toward automobilists). Remind all drivers of horses of the advantages of good roads, agitate the matter before your city aldermen, extend the movement out into your townships and counties, and in a short time a decided improvement will be made in your roads and it will be a pleasure to drive.

I own three automobiles, and it is very aggravating to go out for a ride over some of the poorly kept, neglected roads in this district. Agitate until you get the roads put in first-class condition. W. W. D.

Niagara Falls.

The first of the papers sent contains a report of a good roads meeting called at the instance of our correspondent and held in the city hall in Niagara Falls, Canada. It was an interested gathering of more than 100 persons, including business and professional men and several aldermen. William L. Doran, who was called to the chair, outlined the objects of the association he proposed to organize, spoke of the benefits likely to be derived from the boulevard proposed to be built between Lakes Erie and Ontario by the Niagara Falls park commission, and said this work should be supplemented by good roads and streets in the city. After a discussion of the wretched condition of the streets, the reasons therefor and the remedy, the chairman appointed a committee to draft a platform and the meeting adjourned.

In the second copy of the paper was published the outline of the purpose of the association formed, which is to prevail upon the municipal council, individually and collectively, to enter into a more detailed and comprehensive plan for the care of the roads, as a matter of economy and progressiveness. Nine suggestions as to ways in which the streets should be cared for were added, and a memorial from the "Good Roads Association of Niagara Falls" reminded the Ontario government, the park commission and the member of parliament for the district of the need and desirability of expediting the construction at the earliest possible date of the proposed boulevard along the bank of the Niagara river from Fort Erie to Niagara. The paper also reported the resolution to send a copy of the memorial to the municipalities of Fort Erie, Bridgeburg, Black Creek, Queenstown and Niagara, requesting their earnest coöperation.

Crankshafts and main bearings were discussed at the November meeting of the Mechanical Branch of the Association of Licensed Automobile Manufacturers, held at the A. L. A. M. headquarters at 7 East 42d street, New York, on Wednesday, November 1. Each engineer exhibited drawings showing his methods of construction and gave dimensions, material used, pressure on bearings, methods of lubrication and so on.

Interesting Week-end Run from Detroit.

DETROIT, Mich., Nov. 6.—One of the interesting week-end tours for automobilists of this city is the run to Port Huron, at the foot of Lake Huron. The trip can be made easily in four or five hours, and if the right route is chosen the ride will be a most enjoyable one.

The oldest resident, the stage-coach driver and the farmer, one and all, if asked for directions will tell you to "go straight up Gratiot road." This is the shortest route, it is true, but it is not the best by any means. Gratiot road is one of the old stage roads of the state, and is therefore widely known. It is fairly good for perhaps half the distance, but the heavy sand in places near Port Huron causes the motorist to forget all the good road he has ridden over. The distance by the Gratiot road is sixty-one miles, but much the better going is over the "shore road," which is only six or eight miles longer. This road, skirting St. Clair lake and St. Clair river, offers splendid vistas of scenery, and the eye is delighted with the ever-changing view.

Starting from "automobile row" on Jefferson avenue, Detroit, the route is as follows: To the entrance to Belle Isle, turn left opposite Electric Park and follow Grand Boulevard to the high school building on the right; turn right here, following car tracks on Mock avenue to the end of the line; keep straight ahead over a fine, wide macadam road about four miles to a big sign reading "Dobson Frog Dinners"; turn right and follow gravel road to Grosse Pointe, turn sharp to left at the postoffice, and the next few miles is along the river bank, where the view is beautiful. The river to the right, with the shores of Canada in the distance, and the huge steamships and smaller vessels plying the magnificent waterway, elicit admiration, while the beautiful homes of the Grosse Pointe "farmers" on the left of the road make a charming contrast.

The St. Clair township line, fourteen miles from Detroit, brings an end to the macadam and gravel, the remaining eight miles to Mt. Clemens being part clay and part sand road. This road is good, however. Follow the trolley here, direct to Mt. Clemens.

Leave Mt. Clemens on Gratiot road and follow trolley to Chesterfield, seven miles. The road forks just after crossing the railroad switch. The left-hand road is the short route to Port Huron—thirty-two miles from Chesterfield—but don't take it. A red brick house on the right at the forks is a landmark. Turn right here and follow trolley to New Baltimore, ten miles, cross trolley at outskirts and keep straight ahead into town; pass Chesterfield Hotel on right, also creamery and powerhouse on right, and follow trolley to Anchorville, three miles; turn left to first road, half a mile, turn right one mile, turn left a half mile to church, turn right five miles to end of road; here turn left a quarter mile, turn right to jog in the road, then straight ahead on Chertier road (fine gravel) two miles to Marine City.

At the river in Marine City turn left and follow river road eight miles to St. Clair; continue on river road twelve miles to Port Huron. This road is mostly gravel and offers good driving.

At Port Huron the first objective of automobilists is Yokom's garage, one block to the right just before crossing the river. This is the only garage in town. George Yokom, the proprietor, is a relic of bicycle days, and he still has his office walls decorated with pictures of bicycle stars. Yokom and J. D. Patterson, the jeweler on Military street, are the road authorities of Port Huron, and any information desired may be secured from them.

The following route is suggested by Mr. Patterson as being the best by which to return to Detroit, and investigation proved him to be right:

Leave Port Huron on Military street, go south three miles to Ravenswood; turn right, passing square house on hill at left opposite schoolhouse; follow fine macadam road three miles, then straight ahead over dirt road three miles to Pine river iron bridge; cross bridge, turn right across railroad track, then turn left. Follow this road four miles, down 10 per cent. grade, across bridge, up 10 per cent. hill, to end of road, one mile; turn left a half mile; turn right over gravel road, three miles; cross railroad track, turn left and cross track again; then follow angling road, and pass schoolhouse on left; continue straight ahead to end of road, two miles, turn right down hill across bridge, go two miles, turn left at telephone poles and follow poles three miles to Richmond. Continue straight ahead, passing through Lenox, one mile, to end of road, one mile; turn right at blacksmith shop onto Gratiot road. This point rejoices in the name of "Muttonville," and the roadhouse here provides gasoline for the car and refreshment for the man.

From Muttonville follow Gratiot road to Mt. Clemens, sixteen miles, and continue on same road to Detroit, twenty-two miles—or take the shore road.

The "Patterson route" is sixty-nine miles long, but the road is good all the way, and it can be driven in less time than the sixty-one miles over the Gratiot road.

Dr. P. A. Pearson's new auto arrived Monday. After a little practice the doctor will be quite expert at running the machine. He created a good deal of excitement Wednesday morning by trying to run into Marsh & Bidwell's side door. Frank Kettleson was standing in the door at the time, and was thrown into hysterics, but soon recovered.—Lewis (Kan.) *Press.*

THE AUTOMOBILE

VOL. XIII. No. 19

Published every Thursday by
THE CLASS JOURNAL CO.,
Flatiron Building, Madison Square,
NEW YORK CITY.

Cable Address - - - - Autoland, New York
Long Distance Telephone - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2.00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Beyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 5 o'clock p. m. Monday for the issue of Thursday following.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies Printed in 1904,	- - -	**639,300**
" "	**This Issue,** - -	**14,000**
" "	**Since Jan. 1,** -	**632,000**

Automobiles in Practical Politics. In watching the growth of automobilism, nothing is more interesting than to note the adoption of the machine in new fields of usefulness as a necessary instrument especially by those whose interest is aroused merely by the utility of the machine. It is in this way that the automobile has come into practical politics outside the legislative halls. As an aid to the political campaigner, the automobile has become indispensable, not only in the rural districts, but in the large cities also. This has been shown more markedly than ever before in the municipal campaign in New York City, just closed.

Under the old order of things, the candidate for office was limited in the number of addresses he could deliver, not so much by his own powers of sustained oratory, as by the radius of action and speed of the horse-drawn vehicles which he employed. The physical limitations of the older method of transportation have suddenly been removed by the automobile, and now the time and place no longer set the limit to the politicians' public appearances, but rather his powers of oratorical endurance. For example, one candidate for the office of Mayor of New York drove more han fifty miles in the space of an evening, making eight stops for addresses to constituents at various points lying between the heart of the city to a suburban town several miles distant. And that is only a sample, for other candidates used their automobiles nightly, and were thus able to present themselves at many different points which they would have been unable to cover by any other means of locomotion on the nights preceding the election.

It is such practical demonstrations of the everyday usefulness of the automobile that make for progress and give many thoughtful persons a real interest in the latent possibilities of a machine that is too often viewed as a mere instrument of pleasure. It is that and something more—very much more.

✸

Adjustments on New Machines. One of the things that the purchaser of a new automobile should not do, but usually does, is to readjust everything adjustable as soon as the machine is in his hands. The temptation to try to make the car "run a little better" seems almost irresistible, especially to mechanically inclined persons, and the result is too frequently a haphazard turning of adjusting screws without any definite notion of what is wanted or what the result will be. It is true that on a new machine adjustments are sometimes necessary, but as a rule this is not the case, and a little consideration of the facts will show why.

It is greatly to the advantage of the automobile manufacturer to have his cars run well; and to do this they must be accurately adjusted. The large manufacturer selects from among his employees men who are especially skilled in making adjustments and assigns to them the work of testing the finished machines and putting them in good running order. In an establishment of any magnitude the adjusters will test and tune up a great many machines in the course of a year and will become very expert in their particular work. Doing nothing but test and adjust a single type of mechanism, it is easy to conceive that even a man of only moderate intelligence would soon be much better able to do this work than the most expert mechanic whose knowledge and experience were of a general character. Even if the owner of a car has had some experience with that particular machine, he can hardly feel capable of assuming that his ability to make adjustments is equal, not to say superior, to that of the specialist whose whole time is devoted to doing the one thing and whose livelihood depends upon his doing it well.

It is conceivable that if a machine is to be used under special and unusual conditions some alteration of adjustment may tend to increase its efficiency under the circumstances, because adjustments are made with a view to producing the best all-round results. Also, adjustments are sometimes accidentally disturbed. In the first case the man who knows what he wants and how to do it is justified in making the change, understanding that what he gains in one direction he may lose in another; and in the second case adjustment is, of course, essential. In the great majority of cases, however, it is much the wiser course to leave things alone until sure or reasonably suspicious that something is wrong, and even then to make no changes without knowing what to do, how to do it and why it is necessary.

✸

Aero Club of America. The pioneers in the problem of aerial navigation are certainly enjoying a more lively public interest and appreciative support than those who were the originators of automobile locomotion. Familiarity with the use of highly specialized and refined mechanism in motor car construction has done much to provide what are perhaps the crude beginnings of mechanical flight. Such mechanisms give ready to hand sources of energy that the early pioneers in automobile construction never even imagined possible.

Popular and scientific interest in the newer problem is helpful in providing capital for experimentation and opportunities in which the present result of failure does not create a belief that the problem is impossible of solution. The formation of the Aero Club of America in New York is a manifestation of the spirit referred to. It has been organized in all seriousness to aid in the development of invention and the accumulation of scientific data, and its list of founder members shows support from a wide diversity of commercial and private interests.

When road travel by automobile was as immature as the flying machine is to-day, there was no supporting club to foster the new form of road transportation. It is true that this support came early, long before maturity was reached, but there were practical road vehicles in operation before the Automobile Club of America came into existence. The organization of that club did more for the serious development of the automobile than any one other agency. It is the intention of the Aero Club to give similar support to the advancement of areonautics, and doubtless the membership will soon include those Americans who have done much serious work in this field, and whose names are familiar in scientific circles throughout the world. There is certainly a splendid field of usefulness for such an organization.

✸

The recent decision of leading American steel makers to produce special steels for automobile construction is an encouraging sign of progress. The growth of the industry has made the builder's orders worth the serious attention of the steel maker. The excellence of the productions of certain French and German shops is perhaps due more to the co-operation of the metallurgist than to any other cause.

Roberts Breaks Five-Mile Record at Philadelphia.

PHILADELPHIA, Nov. 6.—Promoted on short notice, last Wednesday's race meet of the Philadelphia Automobile Dealers' Association at Point Breeze track was the most successful ever held in this city. It was the only affair of the kind held here this year. There were in attendance 2,500 persons, and nearly 300 machines were parked near the grand-stand.

Despite a northwest gale, the racing was excellent, the track records for one to five miles, formerly held by Barney Oldfield, being broken by Mortimer Roberts in his 60-horsepower Thomas Flyer. His time for the five miles was 5:11 3-4 (the timing was done by horse-racing men) as against Oldfield's 5:28 3-5.

Roberts also annexed the five-mile free-for-all, in which the majority of the winners of the other races started, including Mrs. Cuneo, in her White steamer, who had rather easily disposed of her field in the three-mile special race for cars selling at $1,500 to $2,500. Roberts played with his field and did not let out the Thomas until the beginning of the fourth mile. His time was 6:11. Mrs. Cuneo brought her White across the tape in third place, being beaten for second place by Phil Kirk in a 35-horsepower Apperson. Later a special two-mile race between the Apperson and the White was put on, and again Mrs. Cuneo was compelled to take her opponent's dust.

While there were no very serious accidents a spectator had his leg hurt by one of the cars after the finish of a race. He had strayed out on to the track from the gate and was knocked down by a car, both bones in the lower leg being cracked.

Following is a summary of the afternoon's racing:

Two miles special, runabouts.—W. David, 8-horsepower Maxwell, 1st; F. Smith, 8-horsepower Maxwell, 2d; Dr. Ferguson, Autocar, 3d. Time, 4:26 3-4.

Two miles special, cars valued up to $1,500.—E. Wilkie, 22-horsepower Buick, 1st; A. C. Harmer, 16-horsepower Elmore, 2d; C. B. Cleaver, 18-horsepower Rambler, 3d. Time, 3:10.

Three miles special, cars from $1,500 to $2,500.—Mrs. Cuneo, 18-horsepower White, 1st; C. W. Rowe, 24-horsepower Searchmont, 2d; A. B. McGowan, 15-horsepower White, 3d; W. M. Swain, 24-horsepower Winton, 4th. Time, 4:08.

Three miles special, cars from $2,500 upward.—Phil Kirk, 35-horsepower Apperson, 1st; S. Dexson, 20-horsepower Speyker, 2d; P. Wostenholme, 24-horsepower Peerless, 3d. Time, 3:59 1-2; F. LaRoche, 24-horse-power Studebaker, disqualified.

Two miles special, 18-horsepower Rambler cars.—Paul B. Huyette, 1st; L. C. Vogel, 2d; Thomas Roberts, Jr., 3d. Time, 3:34.

Two miles special, 16-horsepower Maxwell cars.—Charles Heinze, 1st; W. Longstreth, 2d. Time, 3:35.

Free-for-all, five miles.—Mortimer Roberts, 60-horsepower Thomas Flyer, 1st; Phil Kirk, 35-horsepower Apperson, 2d; Mrs. Cuneo, 18-horsepower White, 3d. Time, 6:11.

Two miles special, 16-horsepower Elmore cars.—W. Swain, 1st; A. C. Harmer, 2d; H. P. Stoey, 3d. Time, 3:48 1-2.

Special match race, two miles.—Phil Kirk, 35-horsepower Apperson, 1st; Mrs. Cuneo, 18-horsepower White, 2d. Time, 3:53.

Special match race, five miles.—Walkover for C. W. Sprague's 22-horsepower Buick, Harry D. Edwards' 16-horsepower Reo having failed to appear. Time by miles, 1:33, 3:05, 4:35, 6:07, 7:37.

Time trial for Autocar, two miles.—Time, 3:32.

Trial for track record, five miles, 5:28-3-5, held by Barney Oldfield.—Mortimer Roberts, 60-horsepower Thomas Flyer. Time by miles, 1.02 3-4, 2:06, 3:08 1-4, 4:10 3-4, 5:11 2-4.

INDIANAPOLIS RACE MEET.

Clemens Wins 100-Mile Race in Record Time in a National.

INDIANAPOLIS, Nov. 4.—In the 100-mile race, the feature of the meet held here today under the auspices of the Indianapolis Automobile Racing Association, W. F. Clemens, an Indianapolis driver, in a 1906 National car, broke the track record for that distance. His time was 1h. 53m. 21 2-5s, or almost five minutes better than the best previous record made in competition. The track was a one-mile oval.

Of five entries but two cars finished, Ray McNamara, in a Premier, being second, more than half an hour after Clemens had finished. The other starters were Fred Tone, driving a Marion; Charles Merz, in a National, and Frank Moore, driving a Maxwell.

The Marion had tire troubles after twelve miles had been run and dropped out. Shortly afterward the Maxwell dropped out, leaving the two Nationals and the Premier in the race.

In the eightieth mile Merz stopped a few minutes for tire repairs. Up to that time he had been running on even terms with Clemens. On a turn in the ninety-fifth mile the big National crashed into a fence, as a result of one of the rear tires bursting. About ten yards of the fence was torn down, and one of the front wheels of the car was broken.

An interesting feature of the program was an exhibition five miles by Carl G. Fisher in his 100-horsepower Premier racer built for the Vanderbilt race. Although Fisher did not break any records, he reeled off five miles at the rate of a little less than a mile a minute, or in 5:05 3-5.

The closing event was the five-mile handicap for cars selected by the judges on their performances to go against the Premier racer. Fisher in the Premier started at scratch, the two Nationals were each given a handicap of 55 seconds, and the Premier touring car 1m. 18s. The event was bitterly fought, but Fisher overtook the other cars one by one, and in the home stretch in the last mile won by a yard from Merz in a most sensational finish.

The meet was pronounced to be the most successful ever given in Indianapolis, despite the fact that it had been postponed six times because of unfavorable weather. The track was remarkably smooth and was in shape for record breaking. Fall races will probably be run annually in the future.

EAGLE ROCK CLIMB IN DOUBT.

NEWARK, Nov. 4.—Although a committee of automobilists, some of whom are connected with the Automobile Club of New Jersey, under whose auspices the Eagle Rock hill climb has heretofore been held, and others from the New Jersey Automobile and Motor Club, has been appointed to make arrangements for the event this fall, it is being said by certain automobilists in a position to know that the contest may not be held this year, owing to the fact that Charles H. Gillette has removed from East Orange to Hartford. Mr. Gillette has always been the leading spirit in organizing and conducting the contest in the past. Local automobilists want the contest held as usual. The residents living in the vicinity of the course are in favor of it, and it is thought that the Essex county freeholders will grant the use of the road for the purpose if the request is made.

HAD NO TIRE TROUBLE.

The report that the Christie car had tire trouble in the Vanderbilt cup race appears to have been erroneous. Reports gathered from all around the Long Island course by the Diamond tire corps show that Walter Christie had no delays on account of tires, and this is supported by Mr. Christie in a letter to the Diamond Rubber Company, reading as follows:

"I noticed in some of the news reports that I had tire troubles during the Vanderbilt race. This I beg to contradict, as I had no tire trouble whatever. My only delay was caused by overspeeding my motor the night before the race, which broke a connecting rod and crippled me badly, or you would have seen your tires making some fast time on my car."

NEWS NOTES OF THE CLUBS.

The regular annual meeting of the Automobile Club of America will be held at the club rooms, 753 Fifth avenue, New York, on Monday evening, November 20, when officers for the ensuing year will be elected. The following nominations have been made by the Board of Governors:

For president, Dave H. Morris; for first vice-president, Colgate Hoyt; for second vice-president, Frederick G. Bourne; for third vice-president, Clarence Gray Dinsmore; for treasurer, W. S. Fanshawe; three governors to serve for three years each, Col. John Jacob Astor, George F. Chamberlin and Schuyler Skaats Wheeler; for one governor to serve one year, John E. Borne; for one governor to serve two years, William Pierson Hamilton.

The Aero Club of America, formed by about seventy members of the Automobile Club of America, as already reported, intends to take up the study of aerial navigation in a serious and scientific manner. Though none of the members are present owners of balloons, aeroplanes or apparatus of a similar nature, the club will commence arrangements for the acquirement of these and other things necessary to the study as soon as the work of organization has been completed. For the present the club headquarters will be at the rooms of the A. C. A., and S. M. Butler, secretary of the Automobile Club, is also secretary of the new club. A meeting will be held at an early date and the organization of the club completed; at the same time a number of applications for membership will be passed on, and these will probably bring the total membership over the limit of 100 set for the founder membership.

WORCESTER.—The Worcester Automobile Club secured new quarters last week. A lease was signed whereby the club will have the use of four rooms, or half of the top floor, of the Chase Building on Front street. The new quarters are in the heart of the city and will be furnished elaborately. They are to be in readiness by the first of December, when it is thought all the alterations will have been completed. A meeting has been called for Tuesday night, as it is planned to incorporate the club. Efforts are to be made to increase the membership and to make the club more of a social organization.

Officers Re-elected by the Selden Association.

The annual meeting of the Association of Licensed Automobile Manufacturers was held at the association's headquarters, 7 East Forty-second street, New York, on Wednesday, November 1, and officers for the coming year elected. The result was the re-election of the present officers, as follows:

President, Charles Clifton, of the George N. Pierce Co., Buffalo; vice-president, William E. Metzger, Cadillac Automobile Co., Detroit; secretary, L. H. Kittredge, Peerless Motor Car Co., Cleveland; treasuerer H. H. Franklin, H. H. Franklin Manufacturing Co., Syracuse; executive committee, Charles Clifton, F. L. Smith, Olds Motor Works; E. H. Cutler, Knox Automobile Co.; S. T. Travis, Jr., Locomobile Co., of America; M. J. Budlong, Electric Vehicle Co.

The manufacturing and importing license held by the Worthington Automobile Company of New York was bought back by the association, the Worthington company, which is taking up the manufacture of steam automobiles, ceasing to be a member. The Royal Motor Car Company of Cleveland was admitted to membership, agreeing to pay royalties on all cars manufactured since January 1, 1903.

The newly incorporated Association Patents Company reported that active work on patent interests of members had been commenced. The show committee reported that all space for exhibits in Madison Square Garden had been allotted.

LOCAL SHOW SANCTIONS.

Manufacturers' Association Takes Action Regarding Those for 1906.

Sanctions for local shows to be held during the coming winter will be limited to cities in which shows were held last winter, according to a decision arrived at during a meeting of the executive committee of the National Association of Automobile Manufacturers held in New York on Thursday, November 2. It was also decided that the proceeds of local shows must go to local dealers' organizations; local organizations must admit to membership all reputable dealers who have been in the same business for at least one year, and local organizations of dealers must not call upon the manufacturers they represent for financial assistance in the conduct of exhibits.

Contrary to an impression that had got abroad, the Association does not expect to sanction road contests, although it may take the details of such contests into consideration and make recommendations to its members.

The test case brought by the association for the purpose of testing the validity of the licensing feature of the New Jersey law came before the Court of Common Pleas in New Jersey on Wednesday, November 1, but no decision has been rendered. It is expected that an appeal will be taken, no matter what the decision may be.

GREAT DEMAND FOR SHOW SPACE.

Applications for space at the Chicago show so largely exceed the space available that there will necessarily be some delay in announcing the allotment. All space in the gallery set aside for accessories has been allotted by the Motor and Accessories Manufacturers' Association. There are eighty-seven applications for space in the complete cars section, applicants desiring to exhibit 368 cars and applying for 224 spaces, aggregating 62,845 square feet. As there are only 131 spaces available, aggregating 39,497 square feet, the difference must be adjusted. The scheme of building an extra gallery was abandoned on account of the danger of fire, owing to the large amount of lumber required for the work.

AUTO STAGES IN ILLINOIS.

YORKVILLE, Ill., Nov. 4—Officers of the Joliet, Plainfield and Aurora electric road, who are also interested in automobiles, have resolved to put a line of fourteen-passenger auto coaches on the highway between Yorkville, Plano and Sandwich, a distance of about fifteen miles.

Yorkville is reached by the Yorkville line of the Elgin and Aurora and Southern electric road, and it is planned to meet the cars of this line at Yorkville and make the run to Plano and Sandwich in the autos. The coaches will be enclosed and heated. A thorough test will be made, and if the experiment pays, an electric line will be built. The wagon roads are good between the points named.

An auto coach line has been established between Hinckley and Sycamore, in DeKalb county, and the venture is paying well.

NEWS AND TRADE MISCELLANY.

The Bennett-Bird Company has secured the Chicago agency for the Corbin car.

L. J. Oliver, heretofore connected with Devlin & Co., Chicago, has taken the position of manager of Ralph Temple's store.

The Mason-Kipp Manufacturing Company, of Madison, Wis., has changed its name to Madison-Kipp Manufacturing Co., and has recently enlarged its plant.

Harrington's Automobile Station in Worcester, and C. K. Smith, of New London, Conn., recently renewed their contracts with C. S. Henshaw to handle the Thomas next year.

B. G. Koether, former purchasing agent of the Hyatt Roller Bearing Co., of Harrison, N. J., has left the purchasing department to become assistant sales manager of that concern.

N. Snellenburg & Co., the big Philadelphia department store owners and clothing manufacturers, are experimenting with a Studebaker electric truck, with a view to equipping their heavy hauling department with several vehicles of this make.

C. W. Kelsey last week relinquished the management of the Philadelphia agency for the Maxwell cars and assumed the duties of general sales manager for the Maxwell-Briscoe Motor Co. at the factory at Tarrytown, N. Y. William P. David succeeds Kelsey as manager of the Philadelphia agency.

A concern recently organized in Chicago under the name Kelly, Hunt & Co., has taken the Northern agency, and after February 1, 1906, will occupy the present quarters of the McDuffie Auto Company, which will move into the new building now being erected to the south of the present one.

The Auto Body Company, of Lansing, Mich., has broken ground for an addition that will double its present capacity. The addition will be of brick and two stories high, in the rear of the present plant. Besides the new building for manufacturing purposes, a new steam plant will be constructed.

The Hayden Auto Company, of Chicago, which has been handling the National, Marion and Monarch cars, is to go out of business, the National agency going to Ralph Temple. Tom Hay, of the Hayden company, will assume the management of the new Chicago branch of the Ford Motor Car Company.

The Lansing, Mich., agency for the Reo has been given for 1906 to Daniel J. Wurges and Frank A. Wall. The agency includes six and a half counties in central Michigan. Messrs. Wurges and Wall have already effected arrangements for the construction of a thoroughly modern all-day and all-night garage and repair shop in the central portion of Lansing.

The manufacturers of the Gabriel horn have sent out to the trade a circular letter announcing that the Gabriel horn is protected by letters patent of the United States No. 802,386, issued October 24, 1905, and that other patents thereon are pending in the United States Patent Office. The letter also calls attention to the fact that the word "Gabriel" has been registered as a trademark.

The new Paris agent for the Olds Motor Works has sent in his first order, which was for seventy-five machines, including two-cylinder and four-cylinder cars and single cylinder runabouts. Besides these the Olds Company has shipped a consignment of automobile goods for the Paris automobile show, which opens December 8. Another consignment has been shipped for the London show, to open November 17.

It is announced by the A. L. A. M. that W. J. Moore, defendant in the injunction proceedings brought by the association, who was supposed to be dead, is very much alive. He was served with the injunction of the Federal Court in Albany a few days ago while in the Ten Eyck hotel. It will be recalled that the suit brought against him by the licensed association was not defended and the court granted the prayer of the complainant and enjoined Moore from using any car that constituted an infringement of the Selden patent.

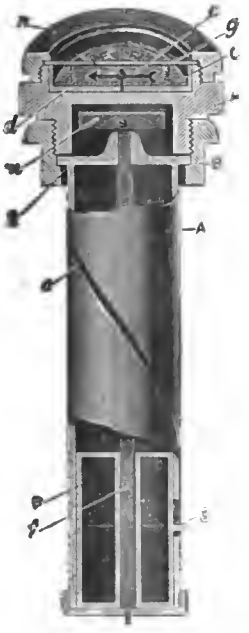
When the two new additions to the C. H. Blomstrom Motor Company's plant at Clark avenue and River street in Detroit are completed, the manufacturing capacity of the company will be increased to three times the present capacity. Two brick buildings, one 290 by 50 feet and the other 150 by 50 feet, are rising rapidly, and the smaller one is expected to be ready for occupancy by November 16. Each building is to be two stories in height and will be used primarily for assembling the machines. The machine shop will remain in the old building. The capacity will be increased to 1,500 cars a year and the improvements are expected to cost about $25,000.

C. A. Benjamin, sales manager of the H. H. Franklin Manufacturing Co., of Syracuse, is making an extended western trip. While in Chicago he will make final arrangements for the handling of the Franklin cars in that city. The following agencies for the Franklin cars are announced: On the Pacific coast and in the Rocky Mountain States, L. L. Whitman; in Southern California, R. C. Hamlin, of Los Angeles; in San Francisco, the Franklin Automobile Agency, under the management of Gus Boyer; in Boston, A. R. Bangs; in Philadelphia, the Quaker City Automobile Co.; in Pittsburg, the Standard Automobile Co.; in New York, the Decauville Automobile Co., and in Washington, Cook & Stoddard.

The Autocar agency in Providence, R. I., which has been in the hands of the Thomas & Lowe Machinery Co. for the past two years, will be controlled by A. S. Hitchcock and G. H. Brown.

INFORMATION FOR BUYERS.

TRIUMPH GASOLINE GAUGE.—One of the little things that adds to the pleasure of automobiling is a device for indicating how much gasoline there is in the tank, so that it is not necessary to unscrew the filling cap and perhaps introduce a stick—a process that may cause the introduction of dirt as well into the gasoline system. The Triumph gasoline gauge, manufactured by the Boston



TRIUMPH GASOLINE GAUGE.

Auto Gage Co., 613 Old South Building, Boston, has a magnetically operated indicating needle on a dial, the instrument being inserted permanently through the filling hole or in a special opening cut in the top of the tank. The manufacturers of this instrument state that the George N. Pierce Co. has adopted it as part of the equipment of its Arrow cars.

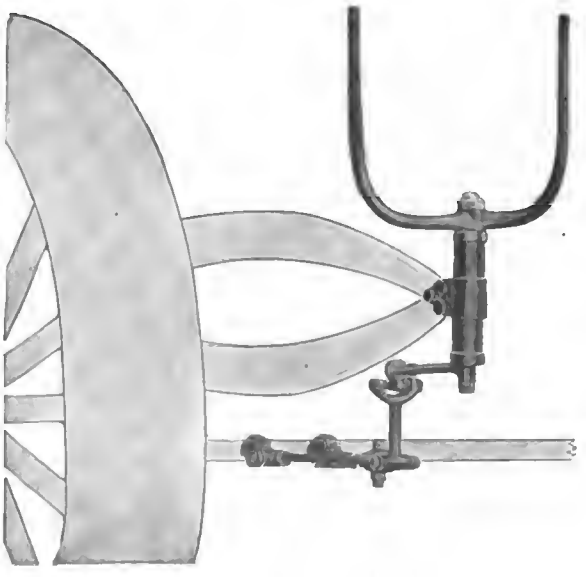
ELECTRIC HORN.—The necessity for sounding the ordinary automobile horn is sometimes a nuisance, especially in heavy traffic, where both hands are required for steering and braking, and a number of inventors have bent their energies toward the production of something that would simplify the sounding of the horn to the last degree. One of the latest devices is the O'Brien "Electrophone," a horn with an electric vibrator in place of the usual reed, the vibrator being operated by a magnet. It is manufactured by the O'Brien Electrophone Co., Augusta, Me. A battery of six dry cells furnishes the necessary current, and the push button for sounding the horn may be placed on the rim of the steering wheel or in any convenient place. The horn is made either straight or coiled, and with single or double tone.

SELF-CLEANING PLUG.—One of the principal claims made for the Excelsior spark plug is that it is self cleaning. The cleaning may be done while the motor is running, if it has more than one cylinder, and, in fact, is best done under these conditions. The cleaning feature consists of small holes leading from the upper extremity of the chamber in the shell of the plug to a point where they would open into the atmosphere were they not covered by a nut. If the plug becomes fouled and the engine misses explosions, the nut is slacked back, opening communication between the inside of the cylinder and the atmosphere through the holes, and the violent rushing back and forth of the air as the piston rises and falls scours away the deposit and starts the plug working again. The faster the engine is running the more violent the rush of air and the quicker and more thorough the cleaning. This, of course, refers to a multiple cylinder engine, in which it is only necessary to turn back the nut for a moment, without removing the plug or stopping the engine, to restore normal conditions. In a single cylinder engine a few turns of the crank by hand will do the work. The plug is insulated with natural stone. The peculiar form of the central electrode permits oil to run down away from the sparking points.

NEW MUFFLER.—A new muffler has recently been brought out by the Champion Mfg. Co., 15 Alling street, Newark, N. J., which is said to be unusually effective in silencing and free from back pressure. It is cylindrical and the gases enter by a pipe in the center of one of the heads. The inlet pipe is continued inside the muffler in the form of a closely coiled spring which extends only half way through the muffler and is closed at the inner end. The shell of the muffler is divided into two parts by a perforated plate midway of its length. The second compartment contains a perforated tube the outer end of which opens into the air. The gases from the engine pass into the spiral spring first, and by their own pressure open the convolutions slightly, thus forming an extremely long and very narrow slit —the space between the coils—through which the gases escape freely, but well broken up. After expanding in the chamber surrounding the spiral, the gases pass through the perforated partition, expand further in the second chamber, and finally escape through the perforated tube to the atmosphere. The manufacturers state that the openings are all of an area equal, in the aggregate, to that of the exhaust pipe, so that there is no choking. The muffler is light and of small size. It gives the best results when placed about three feet from the engine.

MECHANICALLY OPERATED MUFFLER.—A muffler constructed on a new principle has been constructed and a patent applied for by L. T. Weiss, 286 Graham street, Brooklyn, N. Y. This muffler has only a single expansion chamber having a cubic capacity equal to about five times the cubic capacity of one cylinder of the motor with which it is connected. The gases are piped direct to this chamber and escape to the atmosphere through an opening controlled by a mechanically operated valve. This valve is so timed that it is always closed when an exhaust valve on the engine is opening, so that the first rush of the exhaust is caught in the closed expansion chamber. The muffler valve opens as soon as this first rush of gas is over, and remains open while the piston is pushing the gases out of the cylinder. The muffler is built on the theory that the "bark" of the exhaust is produced by the first escape of gas at high pressure. This being deadened in a completely closed muffler, the remainder of the exhaust takes place with but little sound. The area of the opening through which the gases make their escape from the muffler is about twice as great as that of the exhaust valve of the motor, so that back pressure is avoided. Mr. Weiss states that a number of automobilists who have used the device express the highest opinion of its efficiency.

NEW LAMP BRACKET.—When driving an automobile at night with no light except that of the fixed head and side lights on the machine, it is often found that curves and corners must be taken at greatly reduced speed because the lamps, being immovably attached to the body of the car, do not illuminate the road on the curve ahead. The Imperial Brass Mfg. Co., 247 South Jefferson street, Chicago, has brought out a new bracket for such searchlights which causes the lamp to turn with the steering wheels, so as to illuminate the road always in the direction the wheels are pointed. The forked bracket that holds the lamp is mounted to swing on a pivot; to the lower end of the pivot, which projects downward a few inches, is attached a crank connected by jointed rods with the rod extending from one steering knuckle to the other. Thus, when the front wheels turn the lamps follow at the same angle.



IMPERIAL-LYON AUTOMATIC LAMP ADJUSTER.

CONVENIENT SPARK PLUG.—Until the gasoline engine is developed to a point where it will never soot the plugs, or until a plug is produced that will never soot, break or otherwise "cease firing," plugs must be removed from the cylinders at intervals, and the removal of a plug from a close corner in a sizzling hot engine is not always an

THE BREECH-BLOCK PLUG.

agreeable task. The production of a plug that can be removed and replaced with the least expenditure of time and trouble was the object of Earl Candey, of 1001 West avenue, Chicago Heights, Ill., who has devised the "breech-block" plug, having an interrupted thread, from which it derives its name. The base of the plug screws into the cylinder in the usual way, and remains there; but by giving one-sixth of a turn to the handle that is permanently attached to the plug, the upper part, with the insulation, sparking points and packing gaskets, can be removed at once. The porcelain is hand turned and highly glazed; it does not touch the shell of the plug at all, but the ends are held by asbestos and copper gaskets, so that when the holding nut is loosened all the parts are free. The sparking points are adjustable. The metal parts of the plug are nickeled and polished inside as well as outside, to prevent the adherence of soot.

TRADE PUBLICATIONS RECEIVED.

F. A. GOEBEL, Marietta, Ohio—Pamphlet illustrating and describing the Snapit lock switch for automobile ignition circuits.

REO MOTOR CAR CO., 138 West 38th street, New York.—Humorous booklet, entitled "Jolts," reciting the experiences of an automobilist whose car was not a Reo.

NATIONAL BATTERY CO., Buffalo—Circulars illustrating and describing National storage batteries for automobile ignition work and also for use in electric automobiles.

CHARTER MFG. CO., 59 Clark street, Chicago.—Circular regarding force feed lubrication devices for gasoline motors, and illustrating some forms and their application to cars.

THE BARTHOLOMEW CO., Peoria, Ill.—Advance circulars illustrating and describing the Glide automobiles for 1906—Model E, a four-cylinder 30-horsepower touring car, and Model F, a two-cylinder 18-horsepower light touring car.

HESS-BRIGHT MFG. CO., 245 North Broad street, Philadelphia.—Circular illustrating and describing a new ball bearing, of the type manufactured by this concern, intended for use on the steering pivots of automobiles to take the thrust.

WHEELER MFG. CO., Detroit, Mich.—Circulars regarding Rand canopy, cape and extension tops for automobiles; also drawing, showing how to measure for tops of any kind, so that these can be made to order without being actually fitted to the car.

LOCOMOBILE CO. OF AMERICA, Bridgeport, Conn.—Booklet containing preliminary specifications of the 1906 Locomobile cars—Type E, 15-20-horsepower; and type H, 30-35-horsepower, together with illustrations of complete cars and a number of details.

PHOENIX AUTO SUPPLY CO., 3030 Olive street, St. Louis, Mo.—Supplement to general catalogue. Contains illustrations, descriptions and prices of carbureters, ignition apparatus, pumps, horns, springs, jacks, tops and other automobile accessories.

ILLINOIS CENTRAL RAILROAD, 1 Park Row, Chicago.—Book of 220 pages giving locations for industries along the lines of the Illinois Central and the Yazoo & Mississippi Valley railroads, including descriptions of towns and facilities for manufacturing purposes.

CHICAGO & NORTHWESTERN RAILWAY, George Bonnell, Industrial Agent, 215 Jackson Boulevard, Chicago.—Pamphlet giving information regarding opportunities for the establishment of manufacturing plants on the line of the Chicago & Northwestern Railway, and map of the line. A list of a number of factory buildings available for immediate occupancy is given.

DUFF MFG. CO., Pittsburg, Pa.—Pamphlet entitled "Frenzied Jack Sense," containing some humorous rhymes regarding the jacks, for automobile and other work, manufactured by this concern.

GOOD ROADS DEPT., BARRETT MFG. CO., New York City.—Illustrated pamphlet describing the advantages of tar for keeping down dust and preventing the formation of mud on roads. For this work Barrett's road tar is especially prepared and its advantages are described in the pamphlet.

MISSOURI STATE BOARD OF AGRICULTURE, George B. Ellis, secretary, Columbia, Mo.—Pamphlet illustrating and describing road improvement methods, giving interesting and valuable information on the subject of the maintenance of country roads, particularly by the King log-drag method.

H. H. FRANKLIN MFG. CO., Syracuse, N. Y.—Booklet on "Other Peoples' Experience," a collection of letters from persons who use and like the Franklin cars. Especially interesting are letters from automobilists who are still driving Franklins of the earlier models. Also the "Franklin News for 1906," containing illustrations and remarks on the several Franklin models.

HERMAN BOKER & CO., 101 Duane street, New York City.—A pamphlet describing their Meteor wire as a substitute for platinum, and claiming equal durability with less corrosion. This Meteor wire is used for sparking points in automobiles, gas and gasoline engines, and other places where non-corrosive contact points that will not disintegrate under high heats are required.

GASOLINE HANDLING OUTFITS.—A catalogue describing a large number of outfits for handling, storing, measuring and transferring gasoline has been issued by the Western Oil Pump Co., 2437 Kosciusko street, St. Louis, Mo. The advantages of underground storage of gasoline and oil, combined with automatic measurement by an indoor pump are well known to those who use gasoline in large quantities; and even the automobilist whose demands for gasoline are comparatively small frequently finds it exceedingly convenient to have such an outfit, on a small scale, installed for his private garage. The outfits described in the Western Oil Pump Co.'s catalogue cover the requirements of all users of gasoline and oil, and the mechanical details of the appliances used are worked out in an ingenious and substantial manner.

THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, NOVEMBER 23, 1905—CHICAGO No. 21

AUTOMOBILING IN PORTO RICO.

BY A. H. FRAZIER, *Private Secretary to the Governor of Porto Rico*

OWING to the fact that Porto Rico is little known to the traveling public, which annually migrates during the winter months to Florida and other Southern resorts, the splendid opportunities which it offers for automobiling have escaped the notice of enthusiasts. It would be a surprise to many of them to learn that the island is traversed by nearly a thousand kilometers of macadamized roads, passing through some of the most beautiful country in the world, and that this new possession of the United States can be reached in about four days from the port of New York.

Of all the roads of the island the most famous is the Military Road. Constructed in part by slave labor, it connects San Juan and Ponce, the principal cities of the island, situated respectively on the north and south coasts, and will ever remain a monument to Spanish engineering skill. Its easy

Level Stretch of Military Road 2,000 Feet Above Sea Level.

Governor Winthrop's Franklin on One of the New Ornamental Steel Bridges.

Sharp Turn in the Military Road Up Grade in a Rocky Cut.

Old and New Methods of Transportation in the Island.

INTERESTING VIEWS IN PORTO RICO ON THE OLD MILITARY ROAD AND THE NEW HIGHWAY COMPLETED IN 1903.

grades, massive viaducts and general equipment are not surpassed by even the French roads in the Maritime Alps. One hundred and thirty-two kilometers long and rising to a height of two thousand feet in the central mountain chain which divides the island longitudinally, it winds through coffee plantations, banana groves and sugar-cane fields. There are avenues of royal palms in some sections, in others rows of flamboyant trees which in the spring blossom into a gorgeous red, and during the summer months provide grateful shade from the rays of a tropical sun. Kilometers are marked by triangular posts conveniently placed, so as to catch the eye, and at every ten kilometers a large stone indicates the distance from the two extremities.

A second road, completed in 1903, now unites the northern and southern coasts, between the towns of Ponce and Arecibo, Arecibo being situated on the northern coast, considerably to the west of San Juan. It would seem difficult for two roads rising to practically the same altitude and crossing the island within a short distance of each other to present such distinctive features, and yet each has its own characteristics. At the extreme summit of the Ponce-Arecibo route, it is possible on a clear day to look down upon the Caribbean Sea on one side and the Atlantic Ocean on the other. The descent to the north is bold, almost Alpine, and the last stage, from Utuado to Arecibo recalls the gorge of the Yellowstone on a diminished scale. After clinging to the edge of an almost perpendicular cliff for several miles, the road cuts abruptly through the cliff itself, and disappears from view. Between Ponce and Arecibo, there is comparatively little traffic, and those who are fond of bowling over long stretches of deserted road will enjoy the freedom from the long trains of ox-carts which toil over the Military Road. The drivers of these carts, however, are prompt in getting out of the way, and the stranger can count upon receiving from all who use the highways that ready courtesy which is so characteristic of the Porto Rican.

OLD MILITARY ROAD WINDING AMONG THE MOUNTAINS OF CENTRAL PORTO RICO.

While these are the two most important arteries of travel on the island, there are many roads maintained in equally good repair, which are accessible to automobiles. It is true that on the less traveled roads, there are rivers to ford, but during the winter months the weather is apt to be dry and the majority of the rivers containing at that time but a few inches of water, can easily be crossed under power or with the aid of a yoke of oxen.

Gasoline and lubricating oil may be procured in the larger towns, and in San Juan and Ponce there are machine shops capable of undertaking almost any kind of repair work. As showers are frequent in the mountains, it is advisable to equip cars with tops, and an emergency brake is absolutely indispensable.

In the cities of San Juan, Ponce, Mayaguez, Arecibo and at Coamo Springs, the hotels are clean and well kept, but in the smaller towns of the island one must be prepared for discomfort. The tourist will look in vain for the luxurious appointments of the modern hotel, but Spanish cooking is excellent, there is an abundance of tropical fruits, and at the smallest wayside inn it is possible to get a delicious cup of coffee at any hour.

There are two steamship lines running from New York to San Juan, the New York and Porto Rico Steamship Company and the Red D Steamship Company, with a steamer leaving for Porto Rico every Saturday at noon. While it is safer to crate a car for shipment, it is not absolutely necessary, as cars have been sent down with only the lamps and the mud-guards removed. In such case, however, the owner or the chauffeur should personally supervise the loading. Taking all things into consideration, the wonderful climate, the freedom from dust and the absence of vexatious speed regulations, it is difficult to imagine conditions more favorable for winter automobiling.

GUN CLUB OF SAN FRANCISCO RETURNING FROM A DUCK HUNT.

DUCK HUNTING IN CALIFORNIA.

The accompanying engraving shows how the Kubler Gun Club, of San Francisco, goes duck hunting. The trip is usually across the Bay of San Francisco by ferry into Alameda county and down the Alviso marshes. A number of guns are taken along and the bag on the home trip is sometimes large enough to almost obscure the car. The road skirts close along the edge of one of the marshes, which is thickly grown with cat-tails. At this place a number of duck hunters have been using a White steam car instead of a sneak boat. The machine moves along so quietly that the fowl have no idea of danger until the car is directly upon them, when they fly up and give a splendid shot.

Problems in Connection with Auto-boats.*

By CLINTON H. CRANE.

THE very recent development of the so-called "gasoline engine," of extremely light weight in proportion to its power, has given the opportunity of making another step forward in the direction of great speed upon the water.

Up to the present time gasoline engines of extremely light weight have only been available in powers up to 300 horsepower, and in the majority of cases of successful operation in powers not exceeding 150 horsepower.

In utilizing this new form of power up to the present time the size of the boats has necessarily been small. In choosing a type of hull naval architects had to avail themselves of what had already been done in steam.

A glance at the four torpedo-boats, which are illustrated in the accompanying line drawings, will show the very great differences in the shapes of waterlines, profiles and sections adopted by these four successful designers, to produce an easily driven hull. Such difference would seem to show that, with a given displacement and power, the shape of the under-water form, provided it be reasonably fair, was not of the greatest moment, or, rather, that there might be objections to the more easily driven form which made some compromise advisable.

This statement must be modified, as I do not wish to be understood that the services of a skilled naval architect are unnecessary in the building of the fastest possible launch. The saving of weight to the last ounce is a matter of great engineering skill. The choice of a proper propeller, the adaptation of a form which can maintain its speed in rough as well as smooth water—all these are matters calling for the greatest possible training, experience and attention.

AUTO-BOAT "ANTOINETTE" AT SPEED, SHOWING USUAL WAVE FORMATION.

The simile of the skipping stone has been used by a number of engineers in describing the action of these light, high-speed vessels. The idea that a boat should skim over the top of the water and not go through it is by no means a new one.

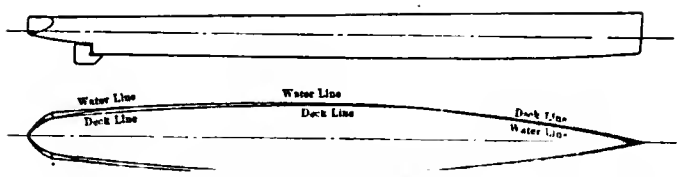
More than thirty years ago a clergyman, the Rev. C. Ramus, was so firmly convinced that all vessels should proceed in this manner that he succeeded in prevailing on the English Admiralty to give his ideas a trial in the experimental tank at Torquay. The result of these trials seemed to show the absolute fallacy of the reverend gentleman's ideas; but the experiments were based on what was then possible in the direction of displacement and power, and with what then seemed a most liberal prediction of future possibilities. We can only feel that Mr. Ramus lived too early.

Two years ago Mr. Yarrow conducted a number of experiments with full-size models of a 40-foot launch towed by one of his 25-knot torpedo-boats. The model which gave the least resistance at this speed was a flat-bottomed scow, which appeared to glide along the surface of the water. Based on this experiment the *Napier II* was designed with such modification of bow as

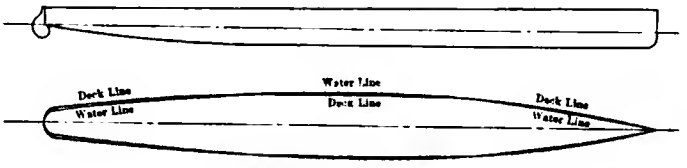
*From a paper read before the Society of Naval Architects and Marine Engineers in New York, in November, 1905.

Data Sheet of Dimensions, etc., of American and Foreign Auto-boats and Torpedo Craft.

Launches.	Torpedo-boats.	Designer.	Length of W. L.	Disp. in lbs or tons in running condition with crew and fuel on board.	Horse-power.	Cylinders. Number	Cylinders. Diam.	Cylinders. Stroke	Maker of engine.	Speed in knots.	Weight in lbs. H. P.	Weight reduced to 40 ft. W. L.	Corresponding speed in knots 40 ft. W. L.
XPDNC.....	.....	Herreshoff.	42.2	3.250 lbs.	75	4	6½	5½	Mercedes..	23.0	43.4	2,750	22.4
Napier ..... (Twin screw.)	.....	Yarrow	40	7,170 lbs.	150	8	6½	6	Napier	25.98	47.8	7,170	25.98
Dixie	.....	Crane.....	40	5,160 lbs.	150	8	6½	6¾	Smith & Mabley.	26	34.4	5,160	26
Veritas.....	.....	Gielow	56	12,000 lbs.	283	8	7⅞	9	Craig.....	23.2	42.4	4,370	19.6
Panhard.....	.....	Electric Launch Co.	39.91	3.621 lbs.	70	4	6 5/16	6.68	Panhard....	23	51.7	3.621	23
Vingt-et-Un II.	....	Crane..	38.75	3.850 lbs.	75	4	6½	6¾	Smith & Mabley.	22	51.4	4,225	22.35
	Normand torpedo-boat.	.....	157	168 tons.	3,920					29.15	96	6,250	14.7
	Yarrow torpedo-boat.	.....	152.7	144 tons.	2,000					25	161.5	5,800	12.8
	Herreshoff torpedo-boat.	....	175.5	165 tons.	3,200					28.6	115.5	4,380	13.65
	Thornycroft torpedo-boat destroyer.	....	244	420 tons.	8,000					29	117.5	4,160	11 75



NORMAND TORPEDO BOAT.
Length, 157 Feet. Displacement, 168 Tons. Speed, 29.15 Knots.



YARROW TORPEDO BOAT.
Length, 152.7 Feet. Displacement, 144 Tons. Speed, 25 Knots.

seemed essential for a boat which would be called upon to perform in a seaway.

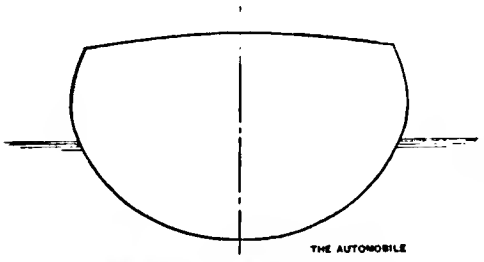
The final successful trial of this boat was made in March of last year on the Thames at Greenwich, and a speed of practically 26 knots was attained. The boat was driven by two 4-cylinder *Napier* engines, and the displacement on trial was 3 tons 4 cwt.

This gives us a very interesting comparison with the *Dixie*, which was driven by a single engine of 8 cylinders of the same diameter and slightly greater stroke. It may be reasonably assumed that the powers developed in the two boats are practically the same. The speed attained by the *Dixie* was practically the same, although her displacement is nearly 2,000 pounds less than that of the Yarrow boat.

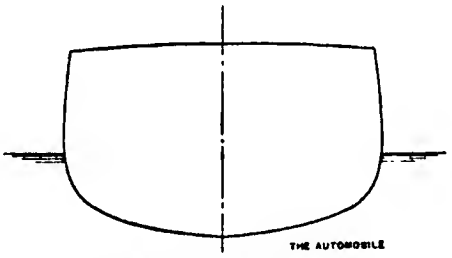
This seems to confirm Mr. Yarrow's conclusion that in boats of tbis size and going at this speed the skimming idea gives the lesser resistance. It is, however, associated with the form of hull, which is very badly adapted to maintaining high speed in a seaway.

As a matter of fact, in spite of her extra weight of hull, *Napier II* was obliged to withdraw from a number of her races, owing to leaks caused by the pounding of her flat bottom on the waves.

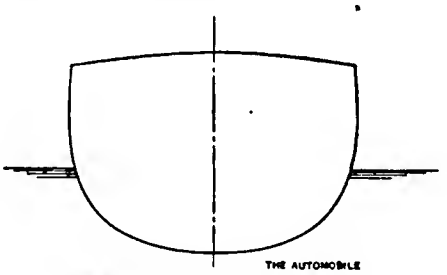
I think no one will question the fact that sharp ends and sharp floors go through a sea with far less shock and trouble than extremely full ends and flat floors. It is not so much that the flat floors stop a boat's progress as that they put a shock and jar on the whole fabric, which necessitates heavier construction and does away with the possible advantages gained by this particular form of bull.



NORMAND TORPEDO BOAT.

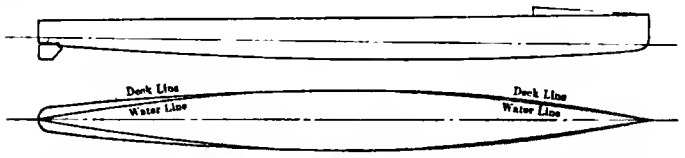


YARROW TORPEDO BOAT.

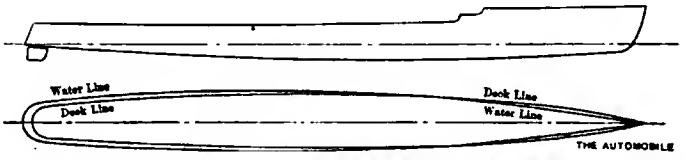


HERRESHOFF TORPEDO BOAT.

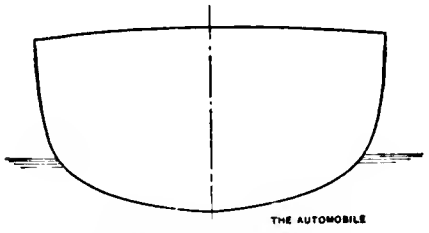
The most serious objection to sharp bows and "toothpick" sterns, as they used to be called, is the loss of stability which this form involves. Apparently this loss of stability is much more serious and more noticeable at high speeds than at low. Whether this is entirely due to the increased torque of the propeller is a matter about which the writer is not yet entirely clear. This torque of the propeller in a fast single-screw launch is a matter of serious consequence. In the case of the *Dixie*, running at full power, this torque amounts to placing a weight of 350 pounds at the



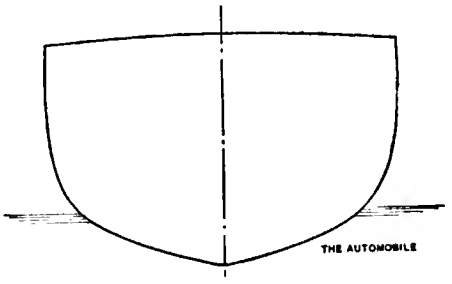
HERRESHOFF TORPEDO BOAT.
Length, 175.5 Feet. Displacement, 165 Tons. Speed, 28.6 Knots.



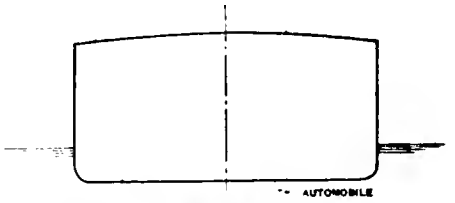
THORNYCROFT TORPEDO-BOAT DESTROYER.
Length, 244 Feet. Displacement, 420 Tons. Speed, 29 Knots.



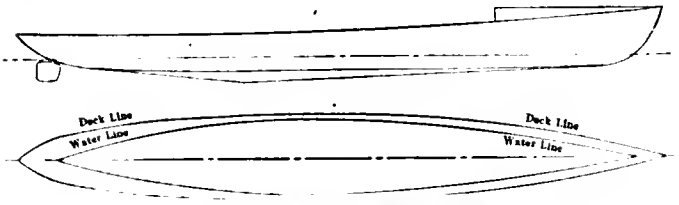
HERRESHOFF LAUNCH.



"DIXIE"



NAPIER LAUNCH.



HERRESHOFF LAUNCH.
Length, 81 Feet. Speed, 22 Miles.

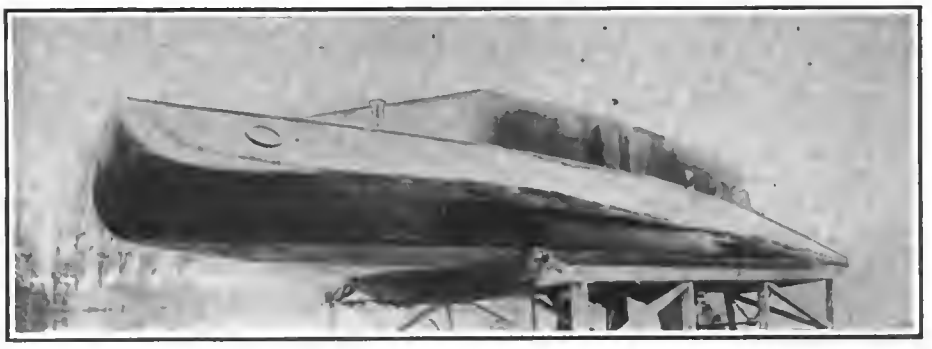
NAPIER LAUNCH.
Length, 40 Feet. Speed, { 22 Knots. 25.9 Knots. (?)

gunwale, or about 8 per cent. of the boat's weight.

This can, of course, be partially compensated for by placing the machinery off the center. Unfortunately, however, for the comfort of those on board this torque is by no means a constant quantity. If the boat throws her wheel out of water, even to a small extent, in the hollow of a wave, this torque is suddenly relieved and the recoil in the opposite direction is sudden and disconcerting.

It is possible that this increase in torque may alone account for the trouble which a number of the high-speed boats have experienced this summer. In designing the *Dixie* this matter was carefully considered, and she was given practically the same metacentric height as the *Vingt-et-un II*, *Vingt-et-un II's* G. M. being .725 and the *Dixie's* G. M. .675. It was expected that the increase in torque could be compensated for by the placing of the crew.

In actual result *Dixie* behaves very much as the *Vingt-et-un* did up to 21 or 22 knots. If driven faster than this in a seaway she becomes very cranky, rolling so deep as to shake the nerve of the uninitiated.



VIEW OF THE NEW DE DIETRICH AUTO-BOAT SHOWING FOREBODY.

placement, which increases the slip on the descending blade and decreases it on the ascending. This difference of slip is as much as 4 or 5 per cent. That is, if the slip of the descending blade is 25 per cent., the slip of the ascending blade would be 20 per cent.

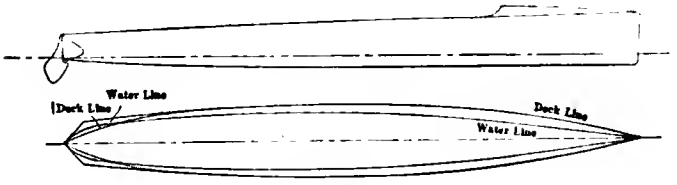
In the *Dixie* we have been using a propeller, to obtain the maximum speed, of 23 1-2 inches diameter, 32 inches pitch, with a surface ratio of 55 per cent., this wheel turning 1,120 revolutions. The boat has not been raced with this wheel, as the piston speed is a little excessive for long-continued running.

This wheel should be perilously near the point of cavitation. As a matter of fact, I have encountered cavitation this year on a smaller wheel, running at fewer revolutions in a slower hull.

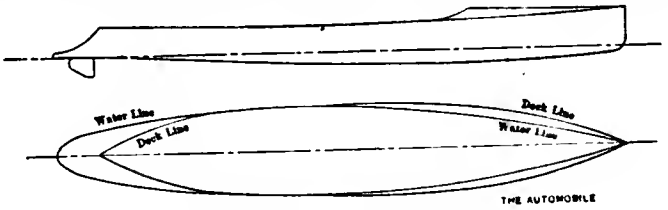
There is one more point about the shape of the model which is worth consideration. the sharp-bowed boats throw a much smaller bow wave than the full-bowed ones.

This mass of water, although it is usually a thin, transparent film, adds greatly to the discomfort of those on board. The boat driving along at nearly 30 miles an hour against a wind and sea, this water strikes the face as from a fire hydrant.

The accompanying table will be of interest. The lengths, weights, speeds and sizes of cylinders I can vouch for as being correct. The horsepowers of the gasoline engines are, with the exception of the *Vingt-et-un II*, subject to a general calculation, and are based on the sizes of the cylinders and an assumed piston speed. They are certainly accurate within 10 per cent. The column $\frac{\text{"Weight in Pounds"}}{\text{H. P.}}$ is one of extreme interest. As all these boats were actually weighed by disinterested parties the results can be taken as accurate.



"DIXIE."
Length, 40 Feet. Speed, 23 Miles.



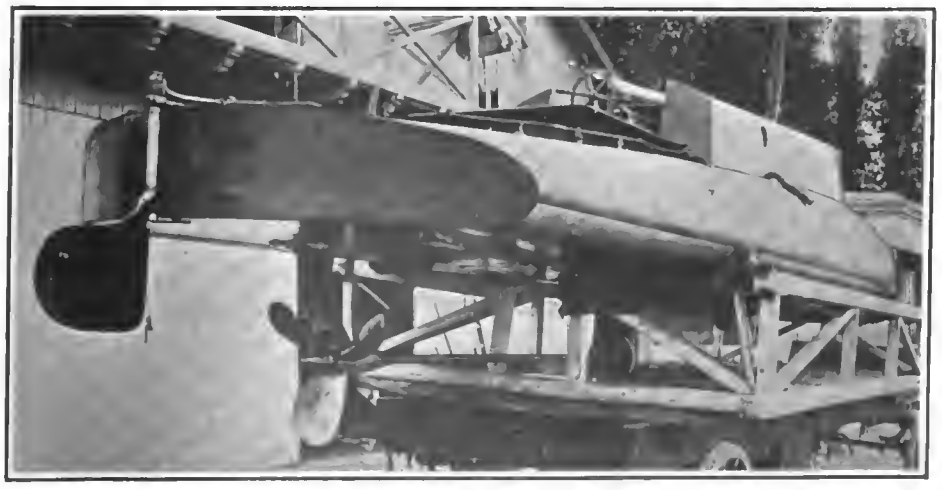
THORNYCROFT LAUNCH.
Length, 30 Feet. Speed, 19 Miles.

It has been found necessary on all these boats to use a comparatively large-size rudder. The uneven thrust of the screw gives a very strong pressure to deviate from the course. Right-handed screws throw the stern to starboard, left-handed to port; this no doubt being partly due to the fact that the bottom of the screw is working in more solid water, and partly to the rather rank inclination of the shaft made necessary by the large power and extremely light dis-

There are, besides the boats enumerated in this column, a number of others which, as a matter of general interest, should be mentioned, but I was unwilling to publish any figures unless I was certain of their accuracy.

The photograph of the *Antoinette*, taken from above, shows most plainly the usual wave formation. So far as one can see there are a series of bow waves unaccompanied by the usual transverse series. The boat at these speeds apparently makes a hollow for herself which is filled in the case of the flat, stern launches by a mass of suds and spray rising sharply several feet astern.

In my opinion, for the best use we need a compromise between the extremely sharp and the extremely flat types. It is in arriving at this compromise that the naval architect can best show his skill.



TERN VIEW OF NEW DE DIETRICH AUTO-BOAT.—Note horizontal position of propeller shaft, which is chain driven from motor shaft.

With this extremely interesting sketch of the subject we print two photographs of the latest Dietrich auto boat, which, though

not referred to by the author, is of special interest as representing the latest ideas in auto boat design abroad. The bow view suggests a resemblance to a fish, which is heightened by the excessive tumble home, which commences at the very stem. The stern view shows a remarkably flat floor, and it will be noted that the propeller rotates in a true vertical plane, the angularity of the shaft being avoided by using a chain drive housed in a casing at the forward end of the propeller shaft. The coaming which surrounds the forward end and sides of the cockpit appears to be unusually high. Our regular readers will recall the performances of the *Dixie*, which have been referred to from time to time in these pages.

EDITOR.

Austrian Armored Automobile.

PARIS, Nov. 8.—An automobile of a unique character is being tested by the Austrian military authorities. Not content with using the new form of locomotion for the transfer of provisions and ammunition, or for reconnoitering—work for which the automobile is especially adapted and to which it has been put by nearly all European war offices—the Austrian authorities have sought a wider application in the construction of an automobile fort.

A model has been constructed at the Daimler factory in Austria, the chassis being of the ordinary type, similar to the Mercedes touring car chassis. All four wheels are direct driven, there being two differentials and two transverse springs. By this arrangement the vehicle can be started and run over any kind of road, and experiments which have already been made showed that it could go down into a ditch and come out again without any difficulty, while crossing a rough field was quite within its possibilities. Steel-sheathed Arbel wheels similar to those which had been tested by Sèrpollet at Nice at speeds of seventy-five miles an hour are used. The whole of the automobile—a 40-horsepower machine—is enclosed, not even the radiator being exposed. The chauffeur occupies the usual position, but, when necessary, even he is made to disappear from view, and the machine has then the appearance of a block house, the only openings being those by which the driver looks out, and others in the turret at the rear, through which appears the muzzle of a machine gun.

The fighting automobile carries only two men—a driver and a gunner—and its speed on ordinary roads is about thirty miles an hour. Only one model of this war automobile exists, but the idea does not belong exclusively to Austria, for a few years ago the firm of Charron, Girardot & Voigt exposed at the Salon a machine on almost exactly the same lines.

Queen Margherita, of Italy, proposes to undertake an extended auto tour throughout the United States next spring, it is reported, and has already ordered a 40-horsepower Fiat for this purpose.

Model Garage in Harlem.

FAITH in the permanency of the present popularity of automobiling is expressed in a practical dollar-and-cents way that nobody can doubt in the large number of new garages that are being erected in nearly all the Northern cities for the storage and care of automobiles for owners. A great many of these are being established in the residence sections of the different cities, indicating that the proprietors expect to derive their principal revenue from storage charges and repair work rather than from the sales of new cars. Until recently, in New York city, nearly all of the new garages that were constructed were located in or near the automobile selling centers of town, either on Thirty-eighth street or on Broadway north of Longacre Square. This fall, however, there has been a movement to give the great residential districts of Harlem and Washington Heights better car storage facilities.

Of the new storage stations recently opened in upper Manhattan Island the largest, best arranged and best equipped is that of the Palace Automobile and Machine Company at 208 West One Hundred and Twenty-fourth street, near Seventh avenue. This is in a large residence district inadequately provided with accommodations for the care of automobiles. It was formally opened the evening after election night and already has attracted considerable trade.

The establishment embraces a new brick building 96 1-2 feet by 50 feet and two stories high and an old private residence 25 feet wide, remodeled. The ground, the buildings and their equipment represent an investment of more than $100,000. The buildings provide accommodations for about 125 cars at the present time, and it is the intention to add two more stories to the new structure next spring.

The utmost care has been taken to provide against fire; not only is the new building of fireproof construction with cement floors throughout, but there are automatic fire doors connecting the new and old buildings, the supplies of fuel and oil are stored in fireproof rooms outside of the new building, electric incandescent lamps only are used for lighting, and the washing of engines with gasoline and kerosene is required to be done in the open air.

The new building has a wide sliding door entrance for cars, to one side of which is a 5,000-pound lift elevator with separate entrance and giving access to all floors and the basement. On each floor is a revolving overhead washer, so that a car can be run on to the elevator from the street, taken to the floor where it is stored, washed, and run to its standing place, with a minimum of handling. The ground floor and part of the second floor are used for storage. The rear half of the second floor is used as a machine shop. It is equipped with one new 8-foot lathe with 14-inch swing, another 14-foot lathe with 25-inch swing, a 16-inch shaper, a drill press and a three-piston air compressor. All the machinery is driven by an electric motor using the Edison company current. To the foregoing are being added a pneumatic riveter and pneumatic drill to be operated by compressed air under 200 pounds pressure. Tires can be inflated on any floor with compressed air at 100 pounds pressure from the same tank. Interesting features of the machine shop are three pits sunk in the

WAITING AND DRESSING ROOM FOR WOMEN IN THE PALACE GARAGE.

NEW GARAGE RECENTLY OPENED IN RESIDENTIAL SECTION OF HARLEM, NEW YORK CITY. NOTE, GARAGE OCCUPIES BOTH NEW AND OLD BUILDINGS.

floor to a depth of 5 feet, enabling a man to work underneath a car in comfortable standing position, with movable incandescent lights and drain pipes leading to the sewer, and the toolroom, where the checking system is in use. The tools are carefully arranged in small spaces that receive but one or two articles, and whenever a workman receives a tool or piece of material a brass check is deposited in place of the part, so that an instant's glance shows when a tool is out and who has possession of it.

On the top floor of the building are stored lamps, tops and various fittings left in charge of the manager by owners of cars and kept under lock and key.

Opening off the ground floor and on the street floor of the old building are quarters for chauffeurs embracing a club room, a reading room and lavatories. In the basement of this building is a brick fireproof room for the storage of cylinder and engine oils kept in Bowser tanks. In the detached brick room in the rear yard is the boiler for heating both buildings and a heater supplying hot water for use in the garage and for the baths.

Buried ten feet in the ground back of the boiler room are two gasoline tanks of 250 gallons' capacity each and a large kerosene tank. Measuring pumps of the Bowser make, connected with the tanks, are housed in a fireproof tank house that is on a level with the top of the boiler or furnace room. The roof of this room is of concrete and is on a level with the ground floor of the garage, so that cars can be run out on to it for filling of the tanks and for washing off the engines and machinery with gasoline or kerosene. Pipes from the fuel tanks lead to the street in front of the building, where direct connection can be made with the delivery tank wagons.

The office of the garage occupies the front of the main floor of the old building, with entrance opening on to the front steps and a side entrance opening by a short flight of stairs onto the ground floor of the garage proper. Directly back of the office is an attractively furnished waiting room for women patrons, with toilet room and large mirrors. On the floor above is a room for men, with individual pressed steel clothes lockers, and adjoining bathroom and shower bath. Adjoining this is a locker room for chauffeurs.

Nothing, apparently, has been left undone or unprovided for to facilitate the safe handling of cars, to insure the highest class of repair work and to provide in a practical way for the convenience and comfort of patrons and their chauffeurs. All the rooms are amply lighted by generous windows.

The officers of the Palace Automobile and Machine Company are Edgar M. Houpt, president; Hamilton Farnham, vice-president; and Charles H. Darmstadt, business manager.

RULES FOR SICILIAN CIRCUIT.

PARIS, Nov. 8.—Rules for the "Targa" Florio fix the date of this important event for May 5, 1906, on a circuit of 187 to 260 miles in Sicily. The race is open to all cars, of which the catalogue price of the chassis is below $4,000, and entries are to be received by the Committee of Fetes, at Palermo. No firm can engage more than six cars, and three of these may be entered by the factory and three by private owners. In case a factory has not directly entered for the race, six private cars may be entered. Entries close twenty days before the event for factories and fifteen days before for private owners. Every entry must be accompanied by the catalogue, together with the price of the chassis and the stroke and bore of the engine, and every automobile entered must be in absolute conformity with the model described in the catalogue. Any car found to be not in complete conformity will be disqualified. New models will always be preferred to those of earlier years, and short chassis to long ones. Commissioners will have the right to disconnect a cylinder before the course, in order to see if the dimensions are exactly those stated, any irregularity in this respect entailing disqualification. Each car must carry two racing seats, and the weight when empty must be not to exceed 2,860 pounds for automobiles from $3,000 to $4,000, and 2,200 pounds for automobiles costing less than $3,000.

Order of starting will be decided by the drawing of lots in the following manner: The names of all the firms engaged will be written on separate cards, the first to be drawn being the first to start and all being sent away in the order in which they are drawn. The names of the drivers will be drawn in a similar manner.

The Targa Florio will become the complete property of the winner, and the $10,000 in money will be awarded in different amounts to the first five winners.

Entries for the Sicilian meeting have already been made, the first engagement being that of three Ariès automobiles. Renault Frères have entered one car and the Darracq. Radia, Berliet and Dolores cars will almost certainly be starters. Among Italian cars it is known that Fiat and Itala will be entered.

Guy Kept Tanked Up.

Guy Moses and wife returned Tuesday from a five-day trip to Waupaca. Guy went by the auto route of course, and being his own chauffeur, satisfied himself several times along the route to see whether his tank was going dry. He reports no accidents. They also went to Ogdensburg, Stevens Point and other sections, with the auto, making in all about 400 miles.—Antigo (Wis.) *Item.*

Low and High Tension in Magneto Ignition.

(From the Autocar. Continued from page 522, issue of November 9.)

RELATION BETWEEN VOLTAGE, CURRENT AND RESISTANCE OF THE CIRCUIT.

IN any case, the motion of the conductors produces an electromotive force (measured in volts), which forces a current through the circuit. The voltage given by a coil depends on the number of turns of wire, and the current depends on this voltage and on the resistance offered by the coil itself, together with other parts of the circuit, to the flow of the current. A given voltage will manifestly force a larger current through the circuit when the resistance is low than when it is high.

From what has been said, it will be seen that the current will be of sufficient strength to do useful work only during certain parts of each revolution, namely, at the periods surrounding the maximum positions. If, therefore, the work which we require to do is of an intermittent character, a current of this kind is specially suitable, since, broadly speaking, it may be said to flow only when required.

To produce a spark at a given point in the circuit, it is only necessary to break

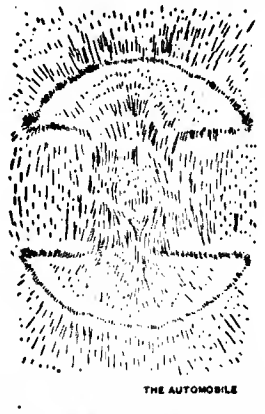


FIG. 11.—FIELD OF MAGNETIZED H ARMATURE CORE.

the circuit suddenly at that point just at the moment when the current is at or near its maximum value. It is clear, then, that the magneto must be driven in a positive manner and correctly set, so that its maximum position may coincide as nearly as possible with the time at which the spark is required.

If the spark is to be "timed" in the usual manner for varying speeds of the engine, it is clear that the exact maximum current cannot always be utilized. If we set the magneto in such a way that the spark when fully retarded occurs exactly at a maximum position, it follows that when the spark is advanced, and so is required earlier, the maximum will not have been reached. At high speeds, however, the magneto will have a stronger current, and consequently it will be capable of giving a good spark at a considerable distance from the maximum. This is especially fortunate, as with increased speeds the maximum occurs later, for a reason which we shall now attempt to explain.

When a current passes around the armature coil, the soft iron core becomes an

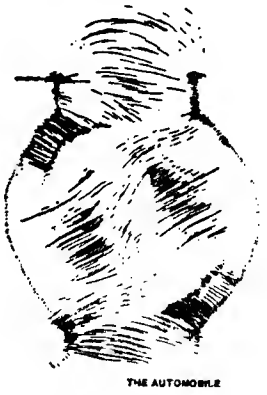


FIG. 12.—MANY LINES STILL THREADING COIL. SMALL CURRENT.

electro-magnet. The field of force produced by the armature core is indicated in Fig. 11, and it will be seen that at the time when a current is flowing through the coil the core stands in the position shown and the general direction of the lines of force is vertical. The effect of this is to distort the horizontal field due to the field magnet and the combination of the two fields is shown in Fig. 12. The direction of rotation of the armature being that of the hands of a clock, this means that the lines of force are pulled forward through an angle and the conductors do not cut them so soon. In other words, the maximum position is retarded.

The greater the speed of the magneto and the resulting current in the armature, the greater the distortion of the field and the consequent retardation of the maximum position. Hence at high speeds, when the spark is required earlier, the "maximum" becomes later and the spark must necessarily occur some time before this maximum is reached.

As has already been said, the current given by the magneto at high speeds is sufficiently strong to allow of a spark being obtained under these circumstances, so that under ordinary working conditions this distortion of the field does not effect results to the extent which might be expected.

BREAKING THE CIRCUIT IN THE CYLINDER.

We may now consider how the necessary break of the electrical circuit may be obtained in the cylinder. There are two distinct methods between which to choose: (1) Mechanical break, in which the contacts are separated by a mechanism, the principal features of which are a cam and a spring; (2) Magneto-electric break, in which the current itself causes the break, by virtue of the magnetic effects produced by it.

Fig. 13 is a diagram illustrating the first of these methods. *A C* represents the armature coil, one end of which is in connection with the insulated contact point *C*. The other end is connected through the frame with the swinging arm *S A*. This arm is connected to and turns with the pivot *A*, to which the lever *L* is also rigidly attached. When the cam continues to rotate in the direction of the arrow the rod *R* falls suddenly under the action of the spring *S*. The nut collar *N* then strikes a part of the lever *L* and the arm *S A* is suddenly forced out of contact with the contact point *C*. If a current happens to be flowing in the circuit, a spark is then produced at *C*. The light spring *S S* brings the lever and arm up into position again as soon as the cam allows it to do so. If this diagram be compared with Fig. 9, there should be no difficulty in understanding the general arrangement. The contacts *C* (Fig. 13) now take the place of the coil *C* (Fig. 9).

Fig. 14 shows the second method of producing a low-tension spark. It should be understood that these figures are simply diagrams, and do not necessarily represent apparatus used in practice; they serve only to illustrate the principles of action. In Fig. 14, the armature coil *A C* is connected with the wipe blades *W*, which from time to time complete the connection through the coil *H C*. This coil is wound on a hollow spool and forms what is called a "solenoid." After passing round the coil, the current flows into the iron plunger *I R*, across the contact points at *C*, and thence completes its circuit through the frame.

Let us consider what happens so long as the wipe contact allows the current to flow. As soon as the connection is completed,

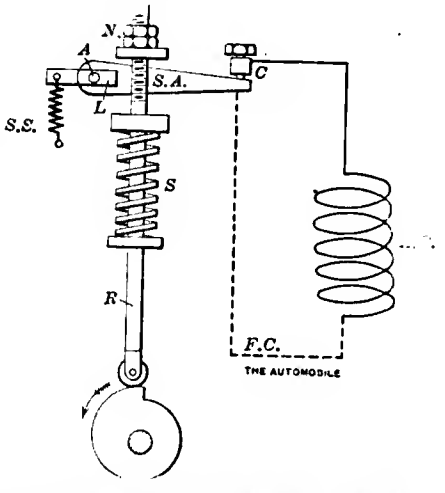


FIG. 13.—MECHANICAL BREAK ARRANGEMENT.

A, lever pivot.
A C, armature coil.
C, points of contact.
F C, frame connection.
L, lever connected to S A.
S S, restoring spring.
N, tappet adjusting collar and nuts.
R, tappet fitted with roller.
S, rapid breaking spring.
S A, swinging arms.

the current flowing around *H C* causes the iron plunger *I R* to be drawn up in the solenoid, and thus breaks contact at *C*, giving a spark between the points as they separate. This connection being broken, the current ceases to flow and the iron plunger

moves back, again completing the circuit. The same action is then repeated. It will be seen that the method is analogous to that of the trembler of a trembler coil.

There is one difference. In the case of the trembler, the spark between the points

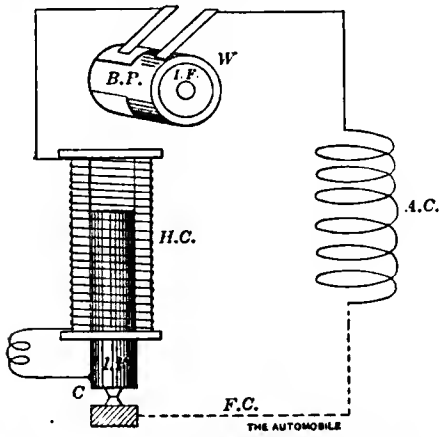


FIG. 14.—ELECTRO MAGNETIC BREAK ARRANGEMENT.

A C, armature coil.
B P, brass piece.
C, contact points.
F C, frame connection.
W, wipe contact blades.
H C, hollow coil or solenoid.
I F, insulating fiber.
I R, iron rod or core.

is minimized by the action of a condenser, whereas in the present instance the existence of the spark is essential. In fact, the coil *H C* is beneficial, in so far as it tends to cause more violent sparking than the mechanical break of Fig. 13. This is due to a phenomenon known as self-induction, with which we cannot deal at this point. It is a well-known fact that it is more difficult to break, without spark, a circuit containing coils than one containing only a length of straight wire. Something like this arrangement is adopted in electro-magnetic plugs. Although two coils are shown, only one is essential.

Before leaving the subject of low-tension magneto ignition, it should be clearly understood that the arrangement of armature and field magnets at present described is by no means essential. It has been chosen for description as the commonest form in use at present. What is necessary is merely some arrangement that will cause the armature coils to cut the lines of force in the field. This may be done in many ways.

For instance, field magnets of the shape shown in Fig. 15 might be used and the armature rotated between them. Again, the armature might be fixed and the field magnets rotated. This system would give a current of equal strength, and offers certain advantages. By building up into a flywheel, the greater part of the weight of the magneto may be saved, since the field magnets now only occupy a position where masses of iron would in any case be required to insure the steady running of the engine. Further, the electrical connections do not have to pass from a rotating armature to a fixed plug, and consequently collecting rings and brushes can be dispensed with.

To take full advantage of this method, it would probably be necessary to have the magneto designed to adapt itself to each separate make of engine. In other words, the makers of the engine would be obliged to give special attention to the ignition arrangements, instead of merely buying and fitting some well-known magneto.

High Tension System.

To obtain a simple idea of the high-tension magneto, let us take an ordinary battery system and replace the storage battery or dry batteries by a low-tension magneto machine of the type already described, and consider the effect produced. For this purpose we may refer to Fig. 16, which shows a simple circuit, with non-trembler coil and make-and-break contact, suitable for a single cylinder engine. The primary circuit only is shown.

The current from the battery or magneto *A* would flow, so long as the circuit were closed, to the primary coil *P C*, across the contacts *C*, and back through the frame connection *F C* and the switch *S*.

The secondary current only springs into existence at the moment when the platinum contacts *C* separate. At this moment, then, the magneto must be giving a strong current, otherwise we have a parallel case to that of an exhausted storage battery, giving so weak a primary current that the resulting secondary current, at the moment of "break" cannot cross the air gap at the sparking plug.

But we have already seen that the current obtained from a magneto of the usual type is of a fluctuating nature, rising to a maximum and falling to zero periodically. It is evident, then, that the magneto must be positively driven at a suitable speed, and must be so set that a maximum position invariably occurs at, or near, the moment

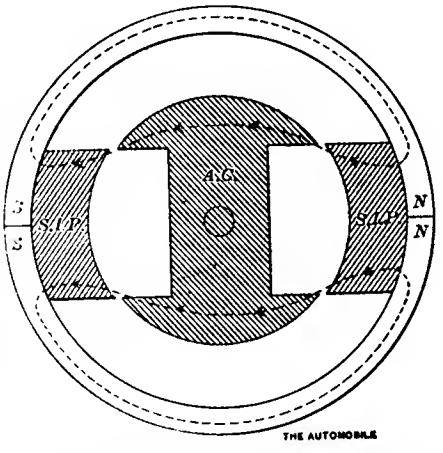


FIG. 15.

A C, armature core.
S, south poles of semi-circular field magnets.
N, north poles of semi-circular field magnets.
S I P, soft iron pole faces.
The dotted lines show the general direction of the lines of force.

of "break." With a positive drive it would therefore be possible to employ a magneto in the way shown in the figure—a method of wiring well known to all motorists. But the results obtained would not be as good as may be obtained by modifying the wiring.

For one thing, there would be no reduction in the number aud length of wires needed. Further, with the switch "off," the magneto would be running on open circuit. Also, the contact-breaking mechanism might, with advantage, be combined with the magneto machine itself. Another point, too, is worthy of notice. When any circuit containing a coil is suddenly broken, the coil has the effect of prolonging the flow of the current and making the break less rapid. This is due to a phenomenon known as self-induction, to which we shall refer later.

It will be seen, then, that a current from the magneto would not be as effective as a current of the same strength from a storage battery, owing to the comparatively slow

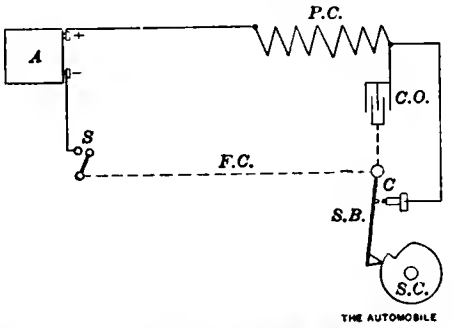


FIG. 16.—A PRELIMINARY EXAMPLE OF WIRING ARRANGEMENT.

A, accumulator (or magneto)
P C, primary winding of induction coil.
C O, condenser.
C, platinum contact
S B, spring steel blade.
S C, steel cam.
F C, frame connection.
S, switch.
C L, contact maker lever.
T1, T2, magneto connections.

break due to the self-induction of the armature coil. Again, the current from a magneto is dependent on the resistance of the circuit through which it flows. The greater the resistance, the smaller the current. The method of wiring shown in Fig. 16 introduces the induction coil and contacts in the main circuit, with the result that the magneto never gives as strong a current as it would do were it running on short-circuit.

We have already emphasized the fact that a magneto may be short-circuited with impunity. We shall now employ this knowledge to alter and adapt our system of wiring to the changed conditions.

Wiring with Magneto in Circuit.

Fig. 17 shows the improved arrangement. The cam *C S* is now on the armature shaft, and the whole contact-breaking mechanism and the wire from T_2 to the switch. The condenser is, of course, enclosed with the coil, leaving only the wire from *C* to *P C*, and the wire from T_2 to the switch. The number of wires is thus reduced.

It will be seen that the contact-breaker is now wired in parallel with the coil, instead of in series with it. In other words, when the switch is closed, and the platinum contacts are together, there are two alternative paths for the current. One of these is from

T_1 to C and straight back through the frame to T_2. This circuit contains no coil other than the armature coil. The resistance of the external circuit is negligible. The other circuit is through the primary winding P C, and offers an appreciable resistance.

When both circuits are closed, almost the entire current will flow through the short

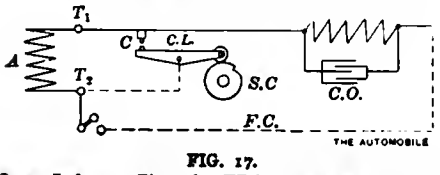


FIG. 17.

Same Index as Fig. 16. Wiring Adapted for Magneto, but with Switch in the Usual Position—Which Is Wrong.

circuit across the platinum contacts. When these contacts separate, only one path is available, and the current flows with a sudden rush through the coil P C. It is at this moment that the spark passes at the plug. So long as the short-circuit is available there is no resistance in the external circuit, and the current flowing from the armature may reach a very high value. When the platinum points separate, the current, being forced to pass through a path of greater resistance, decreases considerably in strength. Consequently, a self-induced current is generated in the armature coil, which tends to maintain the flow of the current in the same way as it would do were the circuit broken altogether, only to a smaller extent. This self-induced current acts in such a direction as to increase the sudden rush of current to the primary coil. It will be seen, then, that the self-induction is now put to a useful purpose, instead of being disadvantageous, as in Fig. 16, and that Fig. 17 gives a more compact ignition system, with less wiring.

(To be continued.)

OBJECT TO TOLL ROAD RATES.

CINCINNATI, Nov. 20.—The Cincinnati Automobile Club is preparing to make war on the toll roads of Hamilton and Clermont counties in Ohio and Kenton and Campbell counties, in Kentucky. The club will send a delegation to Columbus this winter to demand legislation to reach the two counties in Ohio. The members who live in Kentucky will endeavor to secure similar legislation affecting the counties in that state.

The complaint is that the toll roads companies charge extortionate rates. Automobile owners claim that the Ohio law provides that toll shall be collected on vehicles drawn by a horse or other animal; that this law was made before the automobile era, and that, therefore, automobiles do not come within the scope of the law, and consequently no tolls can be collected legally. The toll road owners contend that the automobile is a vehicle and, not being particularly specified in the law, they can fix their own schedule of charges.

At a smoker to be given by the members of the Cincinnati Automobile Club on December 2 the toll question will be discussed.

A Factory for Commercial Vehicles.

THE only large factory in the country built and operated exclusively for the manufacture of industrial automobiles stands less than a mile from the business center of Springfield, Mass. Directly in front, on a tract of meadow land, has been opened a new subdivision, embracing half a dozen or more city squares, upon which have been erected during the past summer many attractive two-story frame residences with ample lawns on all sides. The rear abuts immediately upon the tracks of the New York, New Haven and Hartford Railroad, which affords excellent shipping facilities. The city street car line passes the factory but two squares from the door. Many of the skilled machinists will make their homes in the new houses between the car line and the plant.

The factory is of modern brick mill construction, 215 by 50 feet in size, two stories and basement. It represents a large outlay of capital and is the most practical sort of evidence of the faith in the future of the commercial automobile in America possessed by Harry A. Knox and other successful men of Springfield. The factory represents only one-third of the plant, for which plans have been drawn, and stands on a plot of ground 225 by 400 feet owned by a company organized December 1, 1904, under the name Knox Motor Truck Company. Owing to fear of a popular confusion of identity, a temporary injunction against the use of this name was secured by the other automobile company with which Mr. Knox was for several years associated and which carries his name. To avoid any such confusion of the products of the two plants, the new company adopted the trade name "Atlas" for the trucks which it is manufacturing.

The company incorporated under the laws of Massachusetts with $150,000 capital stock and Harry A. Knox was elected president and general manager, W. S. Pease, vice-president and C. J. Wetzel, treasurer. Mr. Knox holds a majority of the stock.

The building of two experimental trucks after new and original designs was begun immediately, the work being done at the shop of the Bausch Machine Tool Company, in Springfield. The result of experimental tests made with these trucks was the adoption of a type of motor wagon illustrated and described in these pages August 31 last.

This very necessary detail settled, plans were made for having a first lot of fifty trucks built at the Bausch shops, but it soon became apparent that the nature of the work required special equipment, and arrangements were quickly made by the new company to erect its own factory, in which every facility should be provided for the production of the parts under the direct supervision of the general manager and his own superintendent.

The site for the new factory was acquired and work on the building started January 2, and by June 15 the manufacture of the trucks was begun in the new plant. The first complete vehicle was turned out and delivered August 12, when it was sent to Boston under its own power. Although designated a two-ton truck, it carried a load of 5,000 pounds, and, in addition, four persons and their baggage, bringing the total load up to 5,940 pounds. The full distance of ninety-nine miles from Springfield was covered in 11 hours, 30 minutes, but the actual running time was only 10 hours, 19 minutes. During the trip only two minutes' delay was caused by mechanical trouble, which consisted of a loosened battery connection.

Another Atlas truck of the same size was delivered in August to the New York agent, A. L. McMurtry, by road under its own power with a heavy load of sand in bags, as a demonstration run. By that time the new plant was getting out the trucks at the rate of two a week. It was employing a force of sixty men, which was being added to each week. Two models were under construction—the two-ton trucks, designated Model A, and a three-ton truck, after the same design, but heavier and with larger body, called Model B.

If ample elbow room, floods of bright daylight from a clear sky, comfortable

FACTORY ERECTED IN SPRINGFIELD, MASS., EXCLUSIVELY FOR THE MANUFACTURE OF ATLAS TRUCKS.

working temperature, wholesome air, the most modern machinery, shop cleanliness and considerate treatment of the workmen have as much influence upon the quality and quantity of work performed in a shop as progressive managers believe, the very best results should be obtained in this Springfield factory.

Upon entering the doors the visitor steps at once into the office and reception-room, which is made most attractive to the eye by the dark-stained woodwork trimmed in white. The room is of generous proportions, having a railed desk for cashier and bookkeeper at one end and at the other a large table, on which are piled the successive issues of the American automobile publications. Doors at the rear of this room open into a passageway from a side entrance and off the passageway open a number of coat rooms and wash rooms. One of the doors also opens into the big general machine shop. A door behind the cashier's desk gives access to the manager's office, which wears a most cheerful air with its green and white finish in the natural wood, its generous brick fireplace and the bright, pleasing prospect from the four large windows.

The manager's office opens into the machine room, which occupies all the balance of the main floor. From this door is seen the vista of drill presses, heavy turning lathes, boring, grinding and milling machines shown in one of the photographs. In the left foreground of this view can be seen one of the heavy crankshafts of an Atlas truck extending outward from one of the lathes. In the right foreground is a stack of five flywheels and directly behind these are a number of clutch parts. On the floor in the background stand a number of engine cylinders.

The opposite side of this room is seen in the view looking toward the front of the building and showing two completed trucks, one on the large elevator, which gives access to the basement and the second floor. Back of the truck, to the right, in the center of the building, is the large stairway, with lower flights opening, one in the direction of the office and the other toward the rear of the shop.

On the second floor front is a large and amply lighted designing and drafting room, while over the machine room is the assembling and finishing shop.

Power for the machinery is furnished by a 90-horsepower stationary gas engine in the basement, and it is the purpose of the management to install a producer plant for the generation of fuel gas in the factory.

Two large sliding doors at the rear end of the main floor give on to a broad platform extending the full width of the building. From this platform raw material can be unloaded direct from cars standing on a switch track and completed trucks can be run on to cars for shipment either east or west.

A third sliding door at one side of the shop is designed to admit to a wing to be erected in the future, the plans as drawn contemplating a building in the form of a quadrangle 400 by 225 feet in outside dimensions and having an open court in the center. From the rate at which orders have been received for Atlas trucks and the interest shown in their performance in actual road work, the management of the company entertains the belief that the complete plan will take concrete form in the early future.

MACHINE DEPARTMENT ON SOUTH HALF OF MAIN FLOOR.

NORTH HALF, SHOWING ASSEMBLING DEPARTMENT AND ELEVATOR.

SMOOTH PAVING IN WILMINGTON.

The first asphalt and bitulithic pavement is being put down in Wilmington, Del. Several miles of street are being so paved and the work is nearing completion. In celebration of the innovation, there is a movement among automobilists here for a parade of cars over the newly-paved streets as soon as the work is finished and the streets are thrown open to the public. It is proposed to have a street parade, including an automobile contingent, followed by speechmaking, a dinner, vaudeville show and other features. The date will be selected later. Because of the hilliness of the streets, a great deal of Belgian block and firebrick paving has been laid in the past, but now the authorities propose using smooth material on level stretches. Between $50,000 and $100,000 has been spent on this work this year, and it is proposed to spend a like amount next year.

WOULD OUST TOLL COMPANIES.

A campaign whose successful outcome will mean the improvement of almost all the turnpikes in Baltimore county, Maryland, at an expenditure of more than $500,000, was started recently by a number of citizens backed, it is reported, by an influential body of men who, it is rumored, have agreed to stand all expenses of litigation that may arise from the project.

Most of the thoroughfares of the county are governed by turnpike companies, whose charters in some instances date back as far as 1804. In nearly every case the United Railways and Electric Company, which controls the entire system of electric car lines, is the chief stockholder in the turnpike concern, and it has neglected the roadbeds in favor of its railroad. The turnpikes total about 150 miles, and in one direction reach to the Pennsylvania state line. Travel on them is constant.

Proceedings have been instituted to compel the turnpike companies or the railroad company either to abandon the collection of tolls and abandon their charters, or to restore the roads to good condition. It is said that there is precedent in the case and that the company can be forced to turn over the roads to the county.

It is believed by many that the automobile had a great deal to do with bringing about this move on the part of the citizens. Last June there were more than 700 cars in the state. Now the total is nearly double that, and it is increasing rapidly.

It is commonly believed by non-technical persons that anything called "steel" must necessarily be stronger and better than iron. As a matter of fact, poor steel is miserable stuff, not to be compared with decent wrought iron, though the latter is a scarce material nowadays.

New Peerless Designs for 1906.

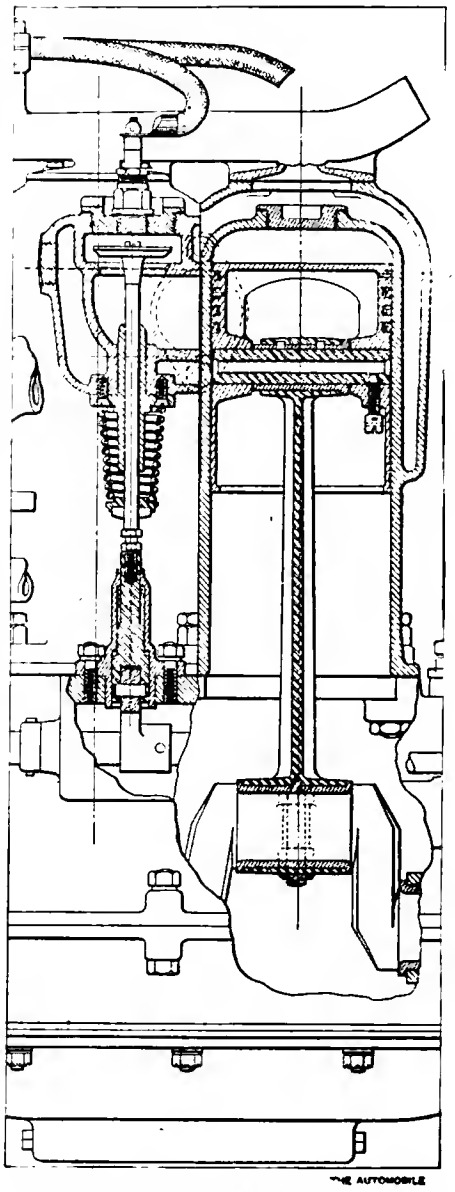
TWO cars, one of 30 horsepower and the other of 45 horsepower, will constitute the 1906 line placed on the market by the Peerless Motor Car Company, of Cleveland, O.; the 30-horsepower car will be known as Model 14 and the 45-horsepower car as Model 15. The 30-horsepower car is illustrated and described herewith.

The Peerless is a big, powerful and comfortable touring machine with four-cylinder motor, internal expanding clutch, four-speed sliding gear transmission and propeller shaft and bevel gear drive. The body is pleasing to the eye, being well proportioned, with a gracefully curved outline; and, what is of even more importance, it is roomy and the seats are wide and comfortably upholstered. The side doors, opening backward, are wide enough to permit easy passage into and out of the tonneau.

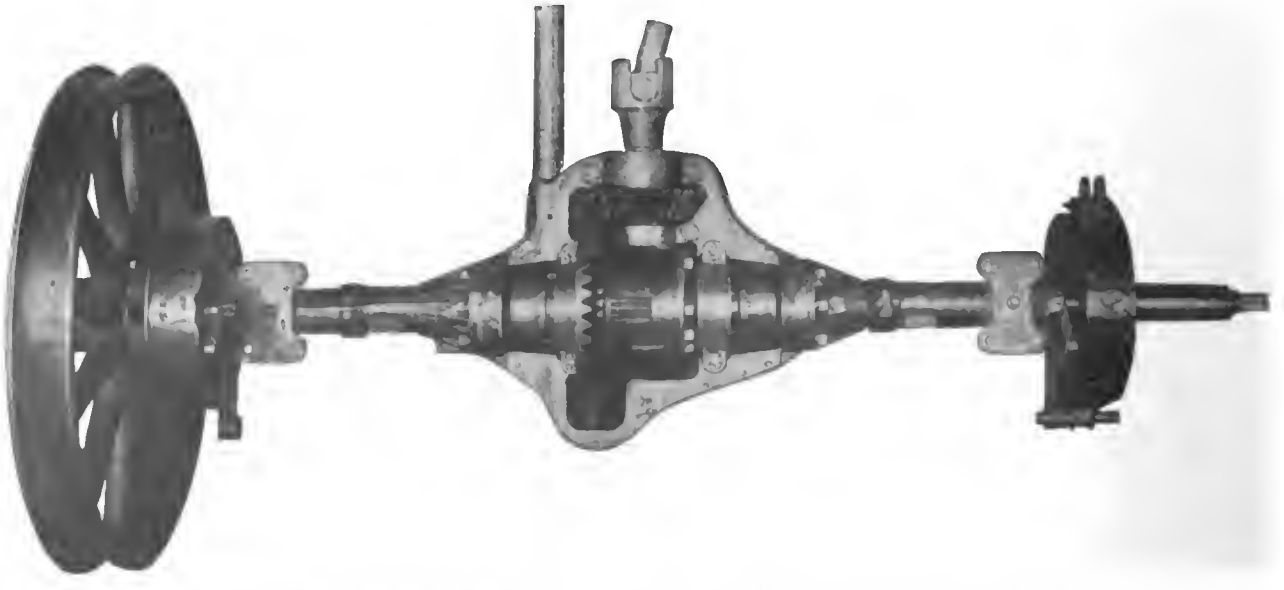
In the construction of the motor there are no departures from lines that have been well tried and are generally accepted as good sound practice; there is a marked absence of so-called "striking points" and there is a general appearance of having been built to work. The main features are made clear by the line engravings. Each pair of cylinders, with cylinder heads, water jackets, valve housings, is a single casting secured to the aluminum crankcase by studs, nuts and lock nuts; over a large opening in the top of the water jacket is secured the branch pipe carrying the cooling water from the radiator, the water circuit being completed by the gear-driven rotary pump and its pipe connections with the lower part of the water jacket and with the radiator. The valves, which are all alike and interchangeable and all mechanically operated, are symmetrically placed on opposite sides of the cylinders, the exhaust valves on the left and the inlet valves on the right; large plugs screwed into the valve housings at the top give ready access to the valves for inspection or grinding, a slot being cut in a projection on the valve head to receive the tool used to revolve the valve. The ports have an effective opening of 1 5-8 inches; the angle of the seating is 45 degrees. Spark plugs are screwed into the caps that close the openings over the inlet valves, where the sparking points are fanned by the incoming cool gas and are thus kept comparatively cool; being out of the way of the escaping exhaust, there is less chance of their becoming sooted. The valve stems work in long removable guides; the springs are held up by washers on the stems, a flat key in each stem holding the washer in position. The push rods are fitted with rollers to take the cam thrust. The pipe from the carbureter has two branches, one supplying the gas for each pair of cylinders — an arrangement that simplifies the piping considerably. The cylinder bore is 4 1-2 inches and the stroke 5 inches; the pistons are somewhat longer than the stroke, and each is fitted with four rings above the piston pin, the rings being split diagonally and fitted with pins to prevent turning in their grooves.

The piston pin is hollow and is prevented from turning by a steel screw with a plain tapered end; the screw is threaded through the boss in the piston and the tapered end fits a tapered hole in the pin. A split pin in the head of the screw prevents its working out. The connecting rods have big ends of the marine type, adjustable, and both ends are bushed with bronze. The piston-pin bearing is 2 1-2 inches long and 7-8 of an inch in diameter, and the big end or crankpin bearing is 2 7-8 inches long and 1 11-16 inches in diameter.

The crankshaft runs in three white bronze bearings suspended from the upper half of the horizontally divided crankcase.



VERTICAL SECTION OF ONE CYLINDER.



PEERLESS REAR AXLE WITH DIFFERENTIAL GEAR COVER REMOVED SHOWING DRIVING GEARS

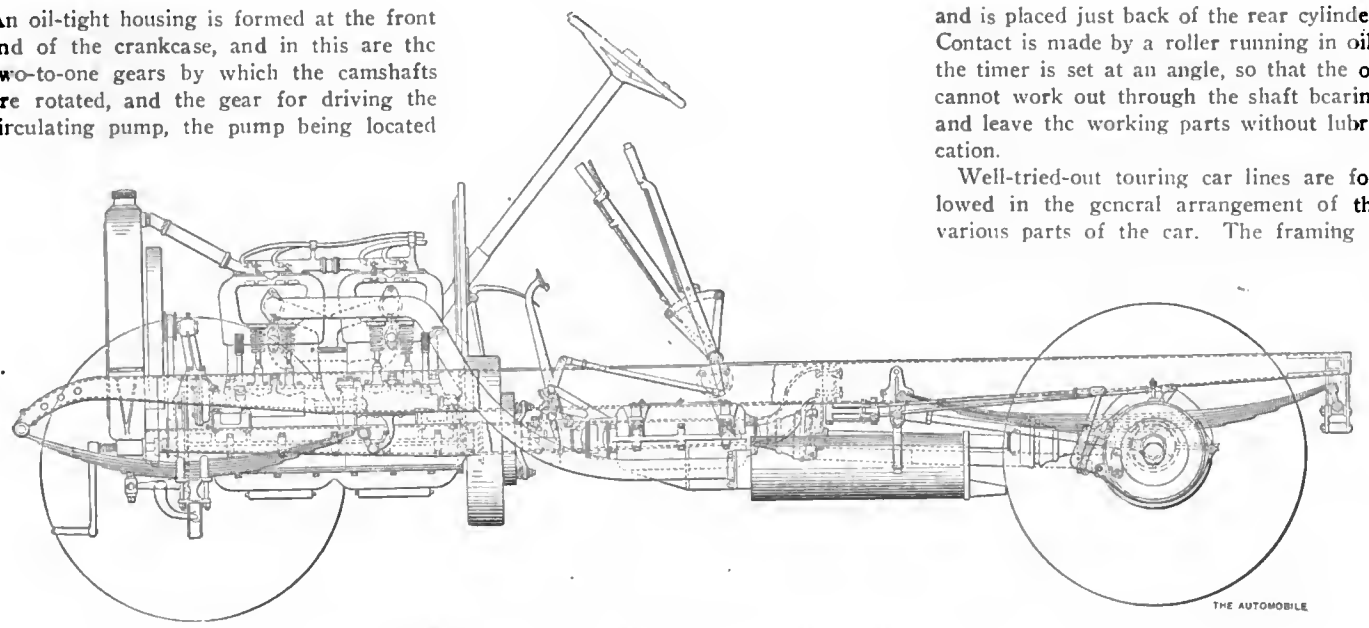
An oil-tight housing is formed at the front end of the crankcase, and in this are the two-to-one gears by which the camshafts are rotated, and the gear for driving the circulating pump, the pump being located between the pairs of cylinders on the right-hand side of the motor. The governor, working on the throttle, is on the gear on the inlet valve camshaft, and is also in the housing at the end of the crankcase. These important parts are thus not only thoroughly protected from accidental injury and exposure to dust and dirt, but are perfectly lubricated, running in oil. A plate on the front of the housing can be removed, exposing the gears and governor. Cylinders are oiled by force feed; lubrication of the crankpins, crankshaft bearings, camshafts and cams is by splash, oil being carried in the crankcase; a plug in the bottom of the crankcase catches all sediment, and when the plug is removed all the old oil drains out through the opening, grooves being cut in the bottom of the crankcase to lead the oil to the hole.

Special care is taken to have the finish of working parts as accurate and smooth as possible. Cylinders are lapped after machining and reaming, and are finished all over inside, including the combustion chambers. The manufacturers state that this not only removes small projections that might overheat and cause pre-ignition, but also insures uniformity in the volume of gas taken into the cylinders. The bearings on the crankshaft are hardened and ground. Cranks and connecting rods can be reached by dropping the bottom of the crankcase without removing the dust pan which protects the motor from the dust of the road.

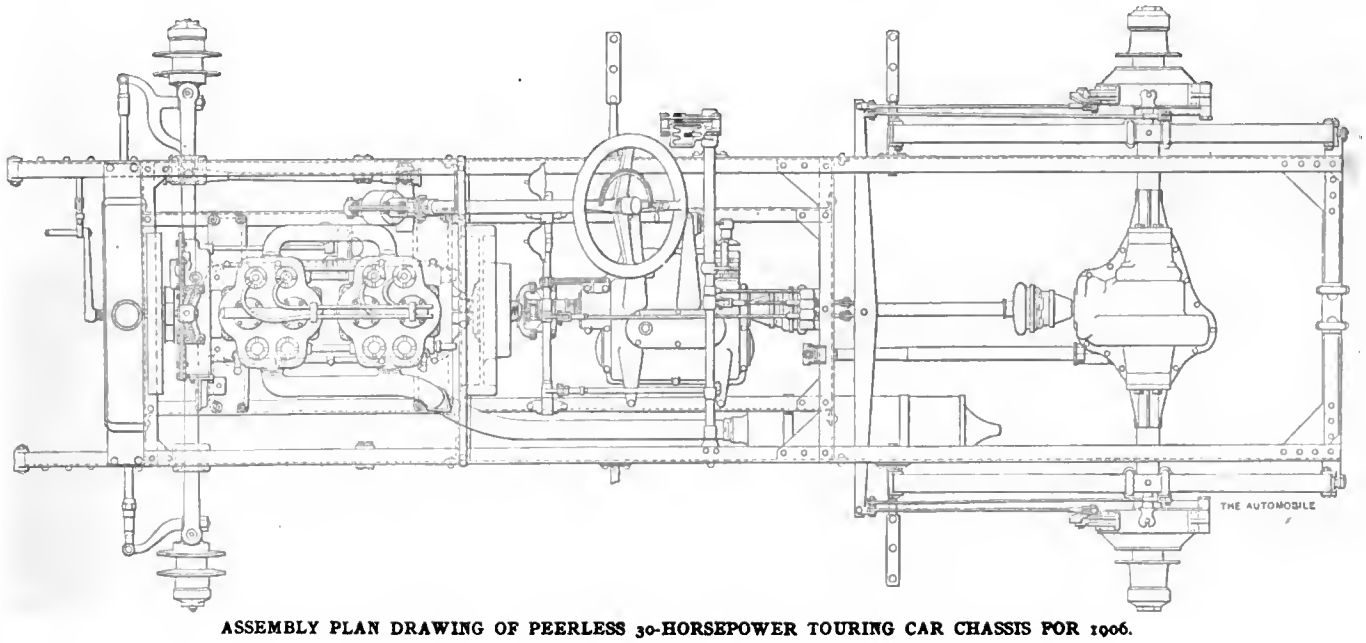
The carbureter is of the float feed type, automatic in its operation, and is heated by a water jacket; the throttle, operated by the governor, is of the butterfly pattern. Ignition is by jump spark, current being supplied by batteries; the timer is driven by bevel gears from one of the camshafts and is placed just back of the rear cylinder. Contact is made by a roller running in oil; the timer is set at an angle, so that the oil cannot work out through the shaft bearing and leave the working parts without lubrication.

Well-tried-out touring car lines are followed in the general arrangement of the various parts of the car. The framing is built up of pressed channel steel members; the sub-frame, carrying the motor and transmission gear case, is very long, extending from the front just back of the radiator to a point near the front ends of the rear springs. Large gusset plates are riveted into the corners to stiffen the structure. The longitudinal members are straight throughout their length—that is, there is no offset near the front; the frame is 148 inches long over all, inclusive of the curved spring hangers at the ends.

The spring suspension system comprises five semi-elliptic springs, two in front and three in the rear, the latter being arranged in platform style. Clips are placed on the springs to prevent breakage from rebounds on very rough roads. The side springs in the rear are placed as close to the wheels as possible in order to bring the load close to the hubs and minimize the strain on the



CHASSIS OF NEW PEERLESS 30-HORSEPOWER TOURING CAR.



ASSEMBLY PLAN DRAWING OF PEERLESS 30-HORSEPOWER TOURING CAR CHASSIS FOR 1906.

axle. Each leaf of every spring is polished so that the friction between the leaves is minimized and sluggishness from friction is prevented.

The motor is attached to the sub-frame by means of the usual arms cast on the crankcase; there are two of these arms at each end of the motor. The flywheel carries the outer member of the clutch, which in this car is of the internal expanding type. The advantages claimed by the builders for this type of clutch are that its light weight and slight momentum greatly facilitate the quick and quiet shifting of the change speed gears; that it takes hold

PEERLESS EXPANDING CLUTCH.

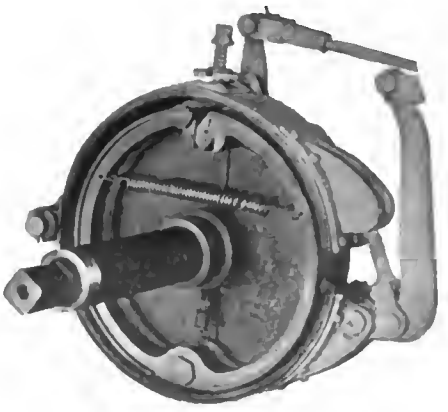
smoothly and progressively, without jerk or jar; that the wear is evenly distributed and automatically taken up; that there is no end thrust on the shaft; and that the clutch can be readily dismounted without disturbing other parts. The clutch pedal is long, affording great leverage, and means are provided for adjusting the distance between the pedal and the driver's seat, so that the driver, whether he be tall or short, can have the clutch pedal within comfortable reach of his foot.

The transmission, giving four speeds forward and reverse, is operated by a lever of the selective type, and both gear shafts run in imported, non-adjustable ball bearings of large size. Though bearings of this kind require little lubrication, special provision is made for supplying them with what oil they need from the supply carried in the gearcase. The case is split horizontally, and has a large hand-hole in the top, through which gears may be cleaned and inspected. Between the transmission gearcase and the crankcase is a universal joint; in case it becomes necessary to remove either motor or gearcase, this joint is readily disconnected, making it unnecessary to disturb other parts. The propeller shaft is of ample size to carry its load, and is fitted with two universal joints, one at each end, each joint being enclosed in a boot filled with grease.

The live rear axle is built on the customary lines, generally speaking, and is of strong construction. The differential casing is of cast iron, and to it the steel tubes through which the live shafts pass are bolted, flanges being brazed to the tubes for this purpose, in addition to the ends of the tubes extending into the casting. An interesting feature of the construction of this rear axle is that there are two joints, one on each side of the driving gears, which permit the rear wheels to be dished two degrees, the same as the front wheels, by slightly arching the entire axle. The joints also prevent binding of the gears, the manufacturers state, and have a noticeable effect on the amount of power delivered to the rear wheels. The wheels revolve on ball bearings on the stationary tubes and are driven from the outer ends of the hubs. Adjustable ball bearings are used in the bevel gears. A heavy truss rod, three-quarters of an inch in diameter, passes under the differential casing and is attached at its ends to bosses formed on the under sides of the spring seats, which are brazed to the tubes.

Steel of I-beam section is used for the front axle. The axle drops away from the steering knuckles at a sharp angle, runs horizontally for a few inches where the front springs are attached, and drops abruptly to the lowest point; a considerable length of the axle, in the center, is straight. This is the lowest part on the car. Elliott steering knuckles turn on ball bearings, and ball thrust bearings in the yokes take the weight and minimize the effort required to steer. The connecting rod between the steering knuckles is located in front of the axle; the joints are encased in boots containing lubricating grease.

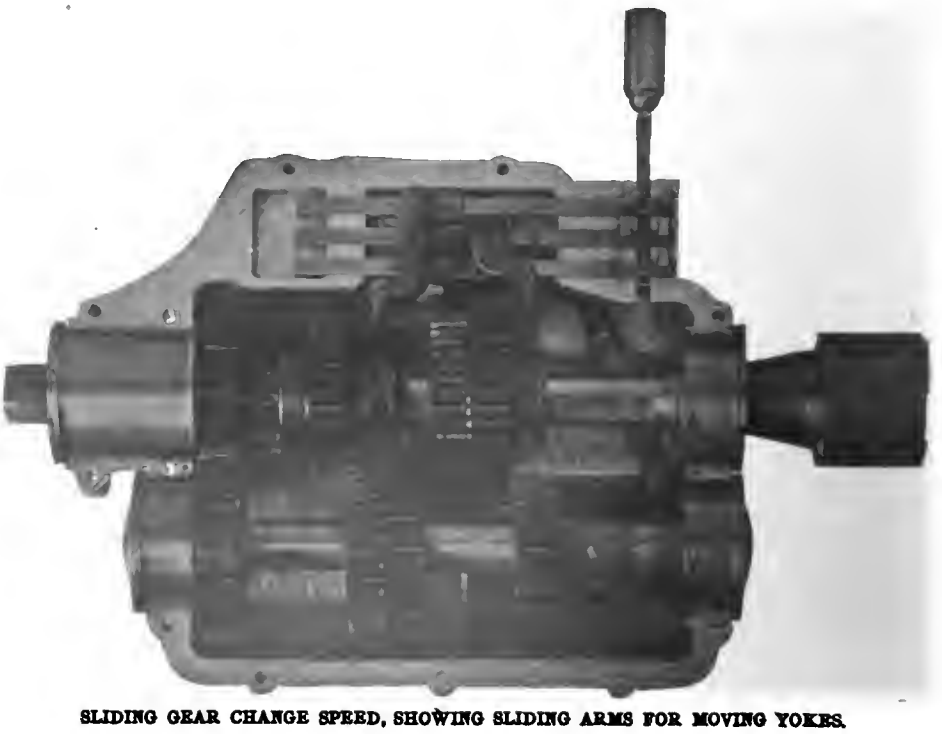
Wheels are 34 inches in diameter, with dished spokes, and run on imported ball bearings, non-adjustable. Four-inch tires are fitted to all wheels; any American tire



INTERNAL AND EXTERNAL BRAKES.

will be fitted at the purchaser's option. Wheelbase is 107 inches and tread standard.

All braking is confined to drums attached to the rear wheels; the regular service brakes, operated by pedal, are constricting bands acting on the exterior surfaces of the drums, while internal expanding brakes, operated by a side lever, are used for emergency service; both are double acting. All the brake bands are lined with fiber and are fitted with springs which prevent contact with the drums when the brakes are released. In the Peerless car the engine can be used as a brake—a practice that is receiving much notice abroad at the present time. The foot brake does not withdraw the clutch, so that this brake can be applied while the engine is connected with the rear wheels through the clutch and transmission gears. Both brakes are provided with equalizers. The drums are of cast steel and are of large size. The finish will be the same as used on the 1905 Peerless cars—a dark, rich green, with striping of fine gold lines. Upholstering is done in a



SLIDING GEAR CHANGE SPEED, SHOWING SLIDING ARMS FOR MOVING YOKES.

fine grade of waterproof black leather and is soft and comfortable. The equipment of each car consists of two acetylene searchlights, two oil side lights and an oil tail light, an outfit of spare parts and the tools necessary for making adjustments.

Grout Gasoline Car.

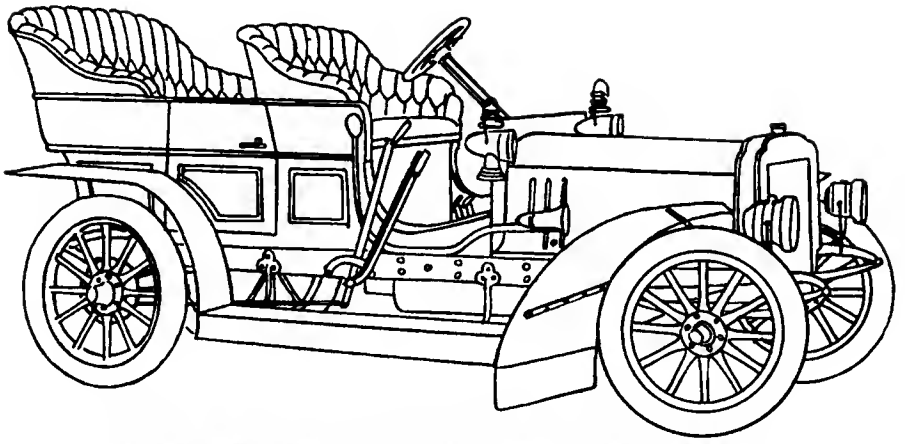
After building steam cars exclusively for a number of years, the Grout Bros. Automobile Co., of Orange, Mass., has branched into the manufacture of gasoline cars as well, the first car having appeared early in the past summer; it was illustrated at the time in these pages. The accompanying engraving shows the latest model, a four-cylinder, 28-30-horsepower, side-entrance touring car with sliding gear transmission and side chain drive, built on up-to-date lines.

The motor has separately cast cylinders, mechanically operated and interchangeable valves and is water cooled; the cylinders have a bore of 4 1-4 inches, and a stroke of 5 inches. The pistons are fitted with four rings each, and are lubricated by force feed. Crankshaft runs in five babbitted bronze bearings, there being three bearings between the main boxes at the ends of the crankcase. All bearings are attached to the upper half of the horizontally divided crankcase, so that the cranks and rods may be inspected by dropping the lower half of the case. Nickel steel forgings are used for the connecting rods; the wrist pins are hollow and are lubricated by splash from the crankcase. Gas is supplied by an automatic float-feed carbureter; ignition is by jump spark, with single coil and distributer. Water circulation is maintained by a gear pump driven from the camshaft.

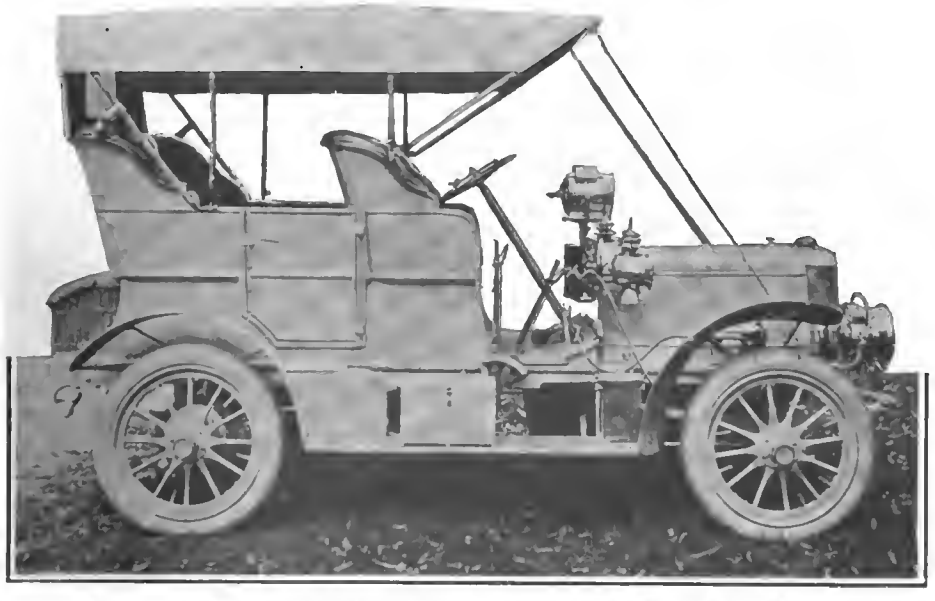
A cone clutch of the familiar type is controlled by a pedal, in the customary manner; it interlocks with both foot and lever brakes. The sliding gear transmission gives three speeds forward and one reverse, with direct drive on the high gear and no gears in mesh at any time except those that are actually working. The aluminum gearcase is oil tight and the shaft bearings are lubricated by splash, pockets being formed to catch the oil thrown up by the gears and carry it to the bearings; the shafts are hardened and ground.

Armored wood is used for the framing, and is well braced. The semi-elliptic springs, 42 inches long, are placed directly under the side members of the frame. Wheels are 30 inches in diameter and have 3 1-2 inch tires; large ball bearings are fitted. The wheelbase is 96 inches. Both front and rear axles are of three per cent. nickel steel of square section and solid; the rear axle is 1 1-2 inches and the front axle 1 3-8 inches square. Brakes consist of a band and drum on the countershaft operated by a pedal, and hub brakes connected to a side lever. Steering gear is of the worm and sector type, irreversible, and is inclosed in a dust-proof casing. Ignition and throttle levers on the top of the wheel are stationary, regardless of the turning of the steering wheel.

A force feed mechanical lubricator supplies oil to the main frictional points. Gasoline is carried in a seamless pressed steel tank under the front seat, the capacity being fifteen gallons. The manufacturers state that the consumption of gasoline is about one gallon for eleven miles running. Standard finish is Brewster green, yellow running gear, gold striping and dark green waterproof leather upholstering. The equipment consists of a horn, two oil side lamps and a set of tools.



NEW FORD MODEL K 40-HORSEPOWER SIX-CYLINDER TOURING CAR.

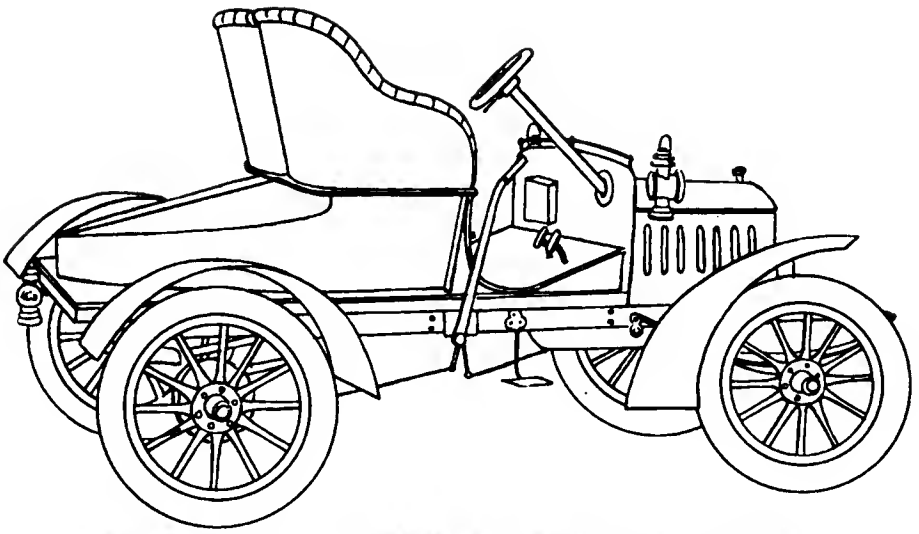


GROUT 28-30-HORSEPOWER GASOLINE CAR, WITH FOUR-CYLINDER ENGINE AND SLIDING GEARS.

Ford 1906 Models.

The line of Ford cars for 1906, as announced by an advance circular issued by the Ford Motor Company, of Detroit, Mich., will comprise three cars: a four-cylinder 15-horsepower runabout, a six-cylinder 40-horsepower touring car, and a light touring car with double-opposed cylinder motor of 4 1-2 inches bore and 4 inches stroke under the body. The three cars will be known as Model N, Model K and Model F, respectively; the light touring car, Model F, is already familiar to those who know the Ford products, while the other two are new.

Model N, the runabout, is built on attractive lines, having individual seats, sloping, round-ended rear deck and a neat hood over the engine. The motor has four vertical water-cooled cylinders with a bore of 3 5-8 inches and a stroke of 3 1-4 inches, and is rated at 15 horsepower; maximum speed, 40 miles an hour. Drive is through a planetary transmission and the Ford direct drive system, which, though the circular does not give any details of its construction, is presumably a propeller shaft and bevel gear drive similar to that used on the 1905 20-horsepower touring car. Roller bearings are used in the rear axle construction, while the thrust of the bevel gears is taken by balls; the front wheels run on ball bearings. Wheels are of wood, 28 inches in diameter, with 2 1-2-inch tires; wheelbase 78 inches and tread 56 inches. Lubrication is effected by a mechanical oiler and sufficient oil is carried for about 200 miles' running; the gasoline supply, ten gallons, is contained in a tank under the seat and is stated to be sufficient for the same distance. Steering is by wheel. Internal expanding brakes are fitted on the hubs of the rear wheels and are brought



FORD MODEL N 15-HORSEPOWER FOUR-CYLINDER RUNABOUT FOR 1906.

into action by a side lever; another brake, on the driving shaft, is controlled by a pedal. Full elliptic springs carry the body at the rear and semi-elliptic springs at the front. The finish is maroon. The equipment consists of two oil side lights, a tail light and a horn. The weight of the car is given as 700 pounds; thus the rated power of the engine gives, approximately, a horsepower for every 48 pounds' weight of the car. The price, which has not yet been definitely fixed, will be from $400 to $500.

Model K is a large touring car with side entrance body. It has a six-cylinder motor with cylinders of 4 1-2-inch bore and 4 1-4-inch stroke, and is rated at 40 horsepower; the maximum speed of the car is given as 50 miles an hour. A magneto furnishes the ignition current; water is circulated by a gear pump and a mechanical oiler is fitted. Fifteen gallons of gasoline are carried in a tank under the seat; gasoline and lubricating oil are calculated to carry the car about 250 miles on one filling of the tanks. As in the runabout, the drive is through planetary transmission and the Ford direct drive system; hub brakes are lever controlled and the shaft brake is set by a pedal. Roller bearings and ball thrusts are fitted to the rear axle and the front wheels run on balls. Wheels, 32 inches in diameter, with 4-inch tires; wheelbase 114 inches and tread 56 inches. Full-elliptic springs are placed in the rear and semi-elliptic springs in front. The car weighs 2,000 pounds, having a horsepower for each 50 pounds' weight. The price is $2,000. The equipment consists of oil side and tail lamps and horn.

Model F, with double-opposed cylinder motor under the body, will carry five passengers and weighs 1,400 pounds. The wheelbase is 84 inches and tread standard; wheels 30 inches in diameter with 3 1-2-inch tires. Maximum speed, 35 miles an hour. Gasoline capacity, 9 gallons; lubricating oil, 3 pints; water, 4 gallons. The car is finished in dark green with yellow running gear; the upholstering is in black leather, tufted.

Welch Pullman Limousine.

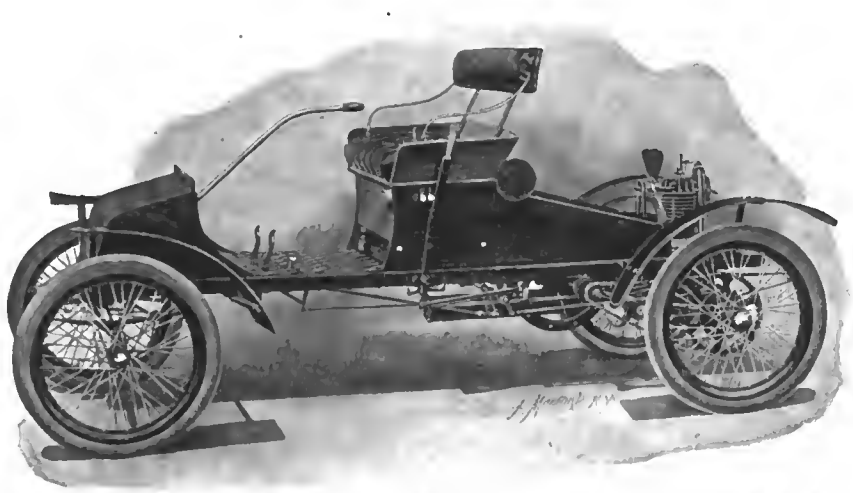
Of the Western cars for 1906 that have attracted attention in the East of late, one of the most imposing and luxurious is the Welch Pullman Limousine, built by the Welch Motor Car Company of Pontiac and Detroit, Mich. This has been exhibited privately in Philadelphia and Boston and is now being shown in New York at the new One Hundred and Twenty-fourth street garage of the Palace Automobile and Machine Company, in New York.

In general, the car follows the lines of the 1905 model. The chassis, which is of pressed steel with 114-inch wheelbase, is fitted with a 36-40-horsepower Welch engine having the four upright cylinders cast in pairs. The cylinder dimensions are 4 1-2 inches bore by 5 inches stroke. The inlet and exhaust valves in each cylinder are set directly in the dome-shaped head on opposite sides, and at an angle of 45 degrees from the vertical. The cam shaft to actuate them is set longitudinally above the center of the heads of the cylinders and operates the valves through rocker arms carrying rollers at their upper ends that rest upon the cams. The spark plugs are at one side of the inlet valves, and their points reach as nearly as possible the exact center of the compression space. Ignition current for the jump spark is obtained from wet cells. It is claimed by the builders that the absence of valve chambers and the position of the spark plug result in the quickest possible inflammation of the charge in the cylinder, as the flame spreads uniformly in all directions at once and the burning of the charge begins immediately over the head of the piston, instead of having to travel the length of a valve chamber, and across the piston head. Among the claimed advantages for this arrangement are that it results in perfect combustion of the charge and makes possible an extraordinary range of speeds for the engine. A special design of Holley carbureter supplies the gas mixture.

A novel change from last year's cars is the location of the circulating pump directly in the center of the radiator, on a shaft that extends through the radiator, and carries at its rear end the fan; the fan belt drives both the fan and the pump. This location of the pump provides an efficient circulation of the water directly in the radiator, which is of special Welch design and manufacture, and is divided internally into half a dozen sections so arranged that the water must circulate through all parts of the cooler before returning to the cylinder jackets.

Another unique feature of the Welch car is the telescoping steering column. The tubing to which the hand wheel is connected slides within the column proper, and has an internal expander that is tight-

WELCH 36-40-HORSEPOWER PULLMAN LIMOUSINE FOR 1906, WITH REMOVABLE TOP.



ORIENT BUCKBOARD FOR 1906, WITH FRICTION DRIVE, HOOD AND DUCK BACK.

ened by means of a large milled nut in the center of the steering wheel to be turned readily by hand. This telescoping feature not only permits the steering wheel to be pushed down to enable the driver to leave and enter his seat from the right side of the car, but also allows the length of the column to be adjusted exactly to suit the preference of any operator.

Drive is through a two-speed transmission with multiple disc clutches, and from the gear box to live rear axle by cardan shaft and bevel gears. The disc clutches are of alternate bronze and steel plates affording 263 square inches of friction surface. The change speed gearing is of such design that when driving direct on high speed the low speed gears do not revolve, although always in mesh. Entire control of the car is by means of one foot pedal for the clutch and wheel brakes, and one side lever for the two speeds and reverse. The brakes operating on the wheels are of large diameter with internal expanhing shoes and ratchet mechanism, enabling the wheels to be locked when the car is under speed. An emergency hand brake operates on a large drum on the driving shaft at the rear of the transmission case.

The cranks and gear shafts are of nickel steel. The connecting rods are drop forged and the crank pins are bushed with bronze and filled with babbitt lining provided with taper key and strap adjustment.

A positively driven multiple feed oiler feeds oil through one tube to the front propeller shaft bearing, whence the oil flows by gravity to the rear bearing and into the differential casing from which the entire rear axle is lubricated. Each feed to the engine, and that to the transmission, is forced by a separate pump that has neither springs nor valves.

Seven passengers can be carried in the closed portion of the Pullman limousine body, which is provided with permanent seats for the very comfortable accommodation of five adults. This body is in reality two bodies in one—an open double phaeton and a closed limousine. If it is not desired to remove the top altogether, the front glass over the dash can be drawn back and up against the roof over the driver's head, the window and its framing back of the front seats can be removed, and the windows and framing forming the upper halves of the doors can be taken off, making a semi-open body. The windows back of the front seat slide sidewise in their frames and the side and rear windows are hinged and provided with adjustable stops so that they can be opened to varying distances to afford complete ventilation. Each of the side doors has built on it a permanent cushioned seat facing inward. The entire top as well as the seats is upholstered in tufted morocco leather, while the front seats are cushioned in a more weatherproof quality of hand-buffed leather. The windows are of bevel plate glass set in mahogany sashes and curtained with satin. Provision is made for warming the interior of the body from a muffler.

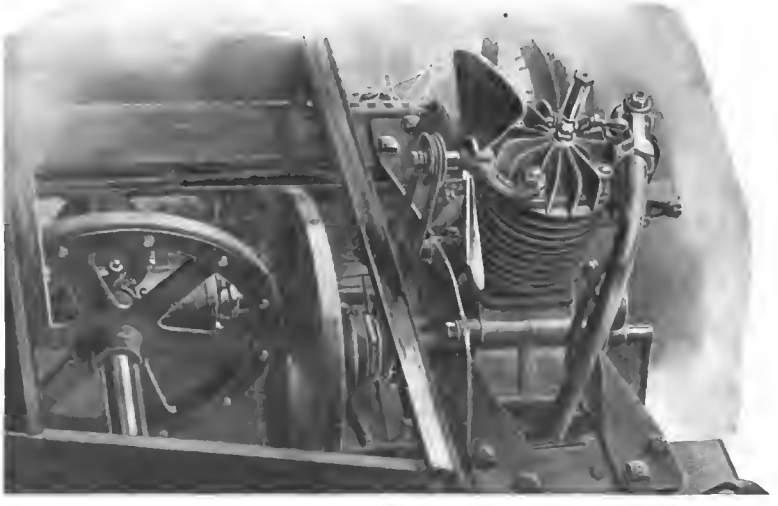
Besides the limousine car, there is also on exhibition in New York a special semi-racing or cross-country Welch car, the chassis of which is of the regular 36-40-horsepower model, with the exception that the rear portion of the pressed steel frame is narrower than in the regular model, the engine is set further back from the front and the drive is geared higher to permit a maximum speed of more than sixty miles an hour. Upon this chassis is mounted a low aluminum body having four individual seats, the rear pair of which are removable to permit the substitution of a turtle back. The rear springs, as in the regular chassis, are of the full elliptic type.

This car made the overland trip from the Michigan factory to New York in four days, over very bad roads and in rainy weather, arriving the day before the Vanderbilt cup race. It is not a regular model of the Welch line, but will be built upon special order if desired.

Improved Orient Buckboard.

Changes in the Orient Buckboard make the 1906 model a very different machine from the earlier models of this simple, light, low-priced road vehicle for two persons. While retaining the vertical single-cylinder air-cooled motor, located over the rear axle, the drive, instead of being by direct spur gearing, is by friction wheel and disc to a countershaft and thence by two side chains to the rear wheels. This arrangement provides a very flexible transmission through all speeds from zero to the maximum without gears, enabling the driver to suit his speed exactly to the conditions of travel and the power of the engine. It also results in the avoidance of any noise of meshing gears.

The engine is rated at 4 horsepower, but is said actually to develop 5 1-2 horsepower. The cylinder dimensions are 3 1-4-inch bore by 4 1-4-inch stroke. The friction disc occupies the position of the flywheel on the engine shaft and has a smooth metal face. The wheel which engages upon it is faced on the periphery with a special fibroid that has remarkable adhesive qualities. Pressure



POWER PLANT OF BUCKBOARD SHOWING ENGINE, FRICTION DISC AND WHEEL.

of this wheel against the disc is regulated by a ball thrust in the rear of the disc, which is operated by a left-foot pedal having a ratchet permitting of five different degrees of pressure.

The friction transmission permits of reverse motion at any desired speed up to the maximum forward speed, and is accomplished merely by shifting the friction wheel across the face of the disc to the opposite side. When the wheel is in the center of the disc it is in neutral position, but to prevent wear it can be moved back out of contact altogether. The position of the wheel with relation to the disc is regulated by a hand lever at the side of the car. The maximum speed of the buckboard, as regularly delivered, is thirty-five miles an hour, but special racing front sprockets can be supplied to increase the speed to more than forty miles an hour. A right-foot pedal actuates the brake.

Instead of being mounted directly upon the axle, as in earlier models, the engine in the 1906 buckboard is mounted on the rear of the frame, which is supported by four 19-inch full-elliptic springs on the axles. This reduces vibration to a minimum, and also increases the clearance of the machinery from the ground to ten inches instead of six. An Orient carburetter furnishes the gas mixture. Cooling is assisted by a four-blade fan mounted in front of the motor. A four-cell dry battery furnishes ignition current and a wipe contact Orient timer of French type regulates the sparking. Lubrication of the cylinder and bearings is by a sight-feed oiler operated from the seat.

A "duck back" covers the transmission machinery back of the seat and a hood and dash have been placed at the front, giving the machine a near approach to the form of the larger runabouts. The hood is a storage receptacle. There is also a light metal case beneath the machinery to protect it from dirt. Mud fenders are fitted above all wheels.

The weight of the car complete is 525 pounds. It has a wheelbase of 80 inches, and the seat comfortably accommodates two persons. The standard gauge or track of the machine is 42 inches, but for sections in which the road conditions require it, a tread of 56 inches—standard wagon tread—can be supplied. The body is of ash, natural finish, mounted on a truss frame. Axles are of 1-inch toughened steel. Wheels are 26 inches in diameter, fitted with 2 1-2-inch Goodrich single-tube tires.

The cylindrical gasoline tank at the back of the seat has a capacity of 3 1-2 gallons, sufficient for a run of about 100 miles. In recent tests this machine is asserted to have traversed 121 miles in 6 3-4 hours on a consumption of four gallons of fuel and 1 3-4 pints of oil and, on another day, was run 93 miles in 5 1-4 hours on three gallons of gasoline and one pint of lubricating oil. Immediately following these tests it ascended Old Boston Rock in Boston, an elevation of 562 feet, and climbed the flight of thirty-five stone steps at the top having an official grade of 32 per cent. On the reverse it climbed a grade of 22 per cent.

The Orient Buckboard has been designed especially to adapt it to rural mail service and use by telephone, telegraph and electric lighting companies, but is equally suitable for country use by private owners as a quick and inexpensive means of transportation.

The sales department for these little cars, as well as for the larger Orient automobiles, has just been removed from New York city to Waltham, Mass., where the factory and general offices of the builders, the Waltham Manufacturing Company, are located.

Allotments for A. C. A. Show in New York.

THE sixth annual automobile show of the Automobile Club of America, to be held at the new armory of the Sixty-ninth Regiment, Twenty-fifth street and Lexington avenue, New York, will be open for a week from January 13 to January 20. All space has been taken and cars of all types will be exhibited, as well as accessories and parts; the list of exhibitors shows that a number of foreign cars will be shown side by side with the American product. The total number of firms exhibiting is 204, of which 64 will be on the main floor, 89 in the galleries, 23 in the gymnasium and 28 in the basement.

A notable feature of the show will be the decorations. There will be no haphazard conglomeration of signs, such as is unavoidable without concerted action; but there will be a uniform scheme of coloring and arrangement, so that the general appearance of the hall will be harmonious and pleasing to the artistic eye. The effect will doubtless be all the more attractive on account of the absence of the crowding of exhibits that has marked the last two or three shows in the Madison Square Garden.

Following is the official list of the exhibitors:

MAIN FLOOR.

Acme Motor Car Co., George B. Adams, American Locomotive Co., American Motor Co., American Peugeot Automobile Co., Ardsley Motor Car Co., Aster Company, Austin Auto Co.

Baker Motor Vehicle Co., Bartholomew Company, E. W. Bliss Co., C. H. Blomstrom Motor Co., Buckeye Mfg. Co.

Central Automobile Co. (Archer & Co.), Charron Girardot & Voight, Class Journal Co. ("The Automobile"), Cleveland Motor Car Co., Corbin Motor Vehicle Corporation, Cryder & Co.

Daimler Manufacturing Co., Dayton Motor Car Co., Duryea Power Co.

E. H. V. Company.

Ford Motor Company.

E. B. Gallaher, Gobron-Brille (Henry F. Gotz), Grout Bros. Auto Co.

Hendee Mfg. Co.

Jackson Auto Co., Thos. B. Jeffery & Co.

Knox Motor Truck Co.

Lane Motor Vehicle Co., Lansden Co., Oscar Lear Automobile Co., Lozier Motor Co.

Marion Motor Car Co., Norris N. Mason, Maxwell-Briscoe Motor Co., Chas. E. Miller (Sundries), Mitchell Motor Car Co., Moline Auto Co., Moon Motor Car Co., Moore Automobile Co., Mors Automobile Co., "Motor Way" (Periodical), Motor World Pub. Co.

National Motor Vehicle Co., Napier Motor Co. of America, Newcomb Motor Co., Nordyke & Marmon Co.

Palmer & Christie, Palais de L'Automobile (H. Neubauer), Panhard & Levassor, Premier Motor Mfg. Co., A. J. Picard, Pungs-Finch Company.

St. Louis Motor Car Co., E. W. Sutphen (English Daimler).

The Rainier Co., Renault Freres Agency, Inc., Reo Motor Car Co.

Wayne Auto Co., Welch Motor Car Co., White Sewing Machine Company.

GALLERY.

American Ball Bearing Co., Aster Co., Aurora Automatic Machine Co., Auto Supply Co.

Badger Brass Manufacturing Co., Baldwin Chain and Manufacturing Co., Belding Automobile Trans. Co., S. F. Bowser & Co., Inc., Briscoe Manufacturing Co., W. H. Brown, Brown-Lipe Gear Co., Byrne Kingston & Co.

Connecticut Telephone & Electric Co., Inc., The Continental Caoutchouc Co., Continental Rubber Works Co., Cooks Ry. Appliance Co., William Cramp & Sons.

Dayton Electrical Manufacturing Co., Diamond Chain & Manufacturing Co., Diamond Rubber Co., R. E. Dietz & Co., Duff Manufacturing Co.

Eastern Carbon Works, Edison Storage Battery Co., Edmunds & Jones Manufacturing Co., Firestone Tire & Rubber Co., Fisk Rubber Co.

Gabriel Horn Mfg. Co., Gearless Trans. Co., B. F. Goodrich Co., Goodyear Tire & Rubber Co., G. & J. Tire Co., Gray & Davis.

R. E. Hardy Co., A. W. Harris Oil Co., Hartford Rubber Works Co., Hartford Suspension Co., Herz & Co., The Hess-Bright Mfg. Co., Hill Mfg Co., William Hjorth, "The Horseless Age," Hyatt Roller Bearing Co.

International A. & V. Tire Co., Iron Clad Mfg. Co.

Klean-Al Mfg. Co.

Light Mfg. & Foundry Co.

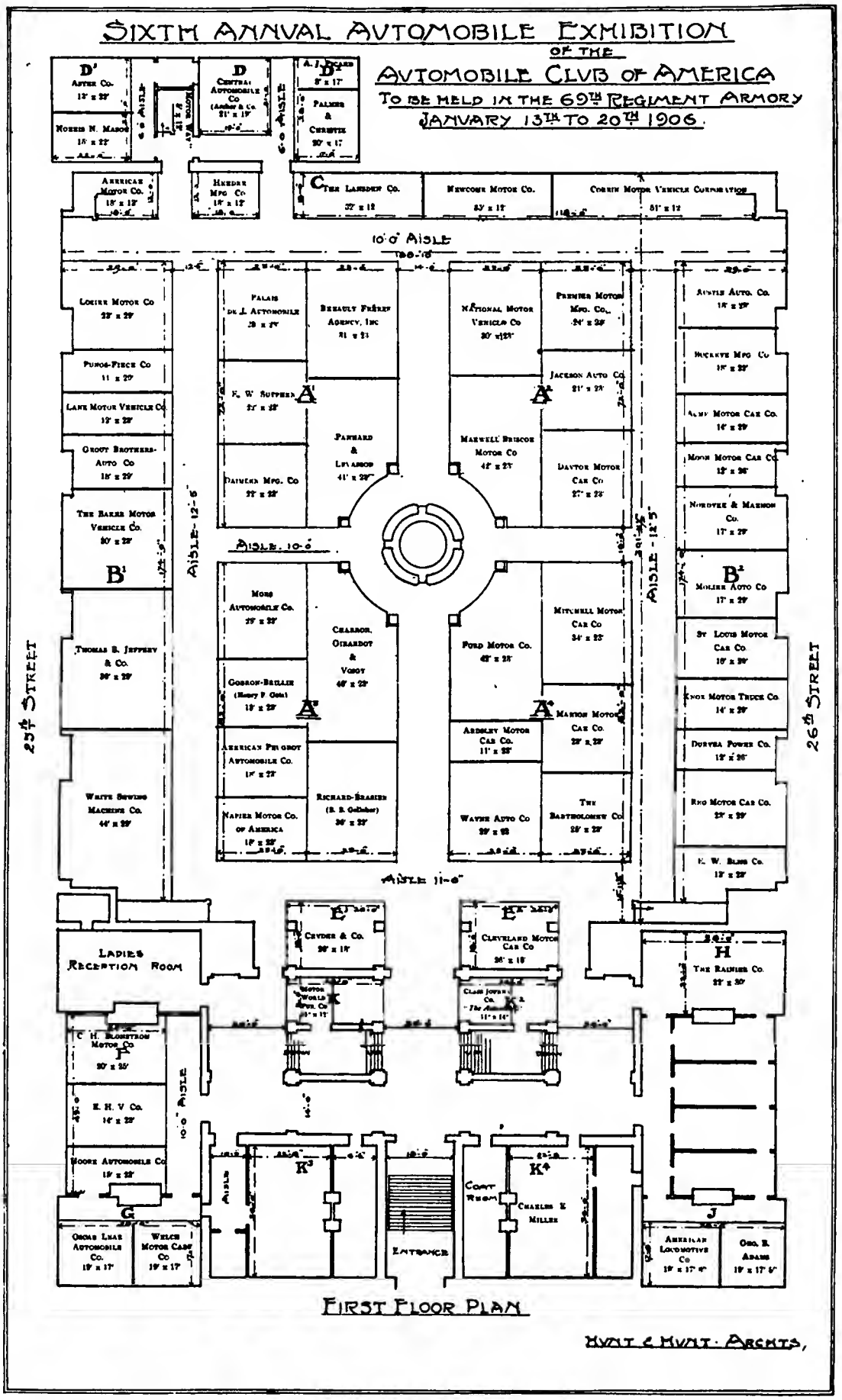
Manhattan Auto School, McCord & Co., McGiehan Odometer & Mfg. Co., Morgan & Wright, Motor Car Equipment Co.

National Carbon Co., N. Y. & N. J. Lubricant Co., N. Y. Sporting Goods Co.

F. W. Ofeldt & Sons, Oliver Mfg. Co.
Parish & Bingham Co., Penn. Rubber Co.,
Presto-Lite Co.
Ry. Appliance Co., Remy Electric Co.,
Republic Rubber Co., Rose Mfg. Co., Leon
Rubay.
Saks & Co., Scandinavian Fur & Leather
Co., Shelby Steel Tube Co., Sibley & Pit-
man, Spicer Universal Joint Mfg. Co., C. F.
Splitdorf Co., Sprague Umbrella Co.,
Springfield Metal Body Co., Standard
Roller Bearing Co., Standard Welding Co.,
Steel Ball Co.
Timker Roller Bearing Axle Co., Trade
Advertising & Pub. Co., Twentieth Century
Mfg. Co.
Veeder Mfg. Co.
Warner Gear Co., Warner Instrument
Co., Webb Co., Wheeler Mfg. Co., Whitlock
Coil Pipe Co., Whitney Mfg. Co. Witherbee
Igniter Co., Worcester Pressed Steel Co.,
Wray Pump & Register Co.

BASEMENT.

Autocar Equipment Co.
Rausch & Lang Carriage Co., Berkshire
Automobile Co., British Westinghouse
Elec. & Mfg. Co., Ltd.
Cantono Electric Tractor Co., Crawford
Automobile Co.
Julian F. Denison, John Dolson & Son,
Dorris Motor Car Co.
Iroquois Iron Works, Iroquois Motor
Car Co.
Johnson Service Co., Jones-Corbin Motor
Co.
Logan Construction Co.
McCrea Motor Truck Co., Mitchell Pune-
tureless Pneumatic Tire Co., Monarch Au-
tomobile Co.
Rapid Motor Vehicle Co.
St. Louis Car Co., Arthur J. Slade.
H. H. Thorp, Twombly Power Co., Twy-
ford Motor Car Co.



PLAN OF MAIN FLOOR OF 69th REGIMENT ARMORY, NEW YORK, SHOWING ALLOTMENT OF SPACES FOR AUTOMOBILE CLUB OF AMERICA SHOW, JANUARY 13 to 20, 1906.

Western Tool Works, Wolverine Auto. & Com. Vehicle Co.
Viqueot Company.
Ocsar Werner.
York Automobile Co.

GYMNASIUM.

Anderson Spark Coil Co., Auto Lock Co.
John Boyle & Co., F. M. Brown.
Consolidated Rubber Tire Co.
Dac Auto Supply House.
F. A. Goebel, Gray-Hawley Mfg. Co.
Hatch & Brittan.
Judson & Downing.
Kinsey Mfg. Co.
Carl E. L. Lipman.
Mason Kipp Mfg. Co., Mills Mfg. Co., A. R. Mosler & Co., Post Mfg. Co.
Republic Rubber Tire Co., Francois Richard.
Safety Motor Power Co., St. John Rubber Tire Co., Sherwin-Williams Co., Survey Map Co.
Uncas Specialty Co.

Allotments of space for the Licensed Association of Automobile Manufacturers show at Madison Square Garden have been made with considerable difficulty, the applications for space greatly exceeding the available area. Other arrangements are progressing satisfactorily. The list of exhibitors will not be made public for several days, however, on account of the large amount of work necessary to wind up the business of making the allotments.

London Will Start the Season's Shows.

LONDON, Nov. 10.—The first of the great international automobile exhibitions to be held during the season of 1905-1906, the show at Olympia, London, England, has this year been timed to take place ahead of the Paris Salon, commencing on Friday, November 17, and lasting until Saturday night, November 25. Olympia is well suited for an automobile exhibition, being a huge building used for public entertainments requiring a great deal of room; Buffalo Bill, for instance, gave his Wild West show at Olympia.

There will be more than 300 exhibitors altogether, about fifty more than last year; 100 concerns will show complete cars, and among these will be fifty foreign manufacturers, some exhibiting directly and some through their British agents.

Among the British cars the Napier, whose six-cylinder engines are claimed by the manufacturers to be the most flexible built, will be prominent. A 40-horsepower chassis with six-cylinder motor will be shown with a Pullman limousine body finished in the most luxurious style. The car will carry seven persons, three in the wide rear seat, two in swiveling armchairs, and two on the front seat. A table, folding against the sides of the car when not in use, extends clear across between the seats; the windows, which can all be opened, are fitted with silk rolling curtains, and an electric light is placed in the roof. A 40-horsepower touring car has a body that can be slid backward off the chassis, exposing all the machinery to view for inspection or repairs.

A British steam car, the Turner-Miesse, has a flash generator built in four sections, the lowest section, which is exposed to the direct heat of the fire, being renewable at comparatively slight cost. Kerosene is used for fuel with excellent results. The engine has three cylinders of the single-acting type, requiring no stuffing-boxes. The power is regulated by governing the amount of water admitted to the generator. Among the exhibits at this stand will be a landaulet built on special order for an English peer.

The well-known Scotch car, the Argyll, built in Glasgow, has been improved in a number of details. The car has been fitted with ball bearings at all points; the steering gear is of a new pattern, as is also the rear axle housing, and many other minor improvements have been made. The exhibit will include a chassis of the latest type with four-cylinder engine with two of the cylinders cut away to show the working parts. A number of complete cars will be seen, with touring bodies and landaulets.

The Lanchester Motor Company will show a touring car and a landau seating six persons, the landau being remarkable for the width of its side doors. These cars have four-cylinder vertical motors with horizontal valves; the cylinders have a bore of four inches with a 3-inch stroke. Low-tension ignition is used. The lubrication is of special interest and the radiator is new.

An interesting car is the Dennis, which has the peculiarity of driving by worm pinion to the live rear axle. Several models of this machine will be exhibited. An exhibition chassis will have the worm-driving gear exposed.

The French De Dion cars will be quite extensively represented; the exhibit will include an 8-horsepower single-cylinder two-seated car, a 9-horsepower single-cylinder car with tonneau, a 12-horsepower two-cylinder car with side entrance double phaeton body, a 24-horsepower four-cylinder car with landaulet body, and a special exhibition chassis, highly finished, with four-cylinder 15-horsepower motor. The 15-horsepower chassis has been made no less than 300 pounds lighter than last year's model. A novel color scheme will dominate this stand; decorations and cars are all of a quiet dark red, rich and tasteful in the extreme.

Charron, Girardot & Voigt cars will be exhibited in the same stand with the Belgian Pipe cars. A new C. G. V. car is the 14-horsepower machine with live axle. These cars have engine and transmission gearcase suspended on the three-point principle, each having its individual suspension. Ignition is by high-tension magneto. A novelty in spring suspension, at least so far as modern automobiles are concerned, will be shown. This consists in the use of C springs, which, notwithstanding their unusual appearance, are said to have given excellent results in actual road work. The Pipe cars will be represented by a 28-horsepower limousine and a 50-horsepower chassis.

Charles Jarrott & Letts will exhibit De Dietrich cars, all finished in dark green. The cars include a new 15-20-horsepower car, a 16-horsepower landaulet, 24-horsepower limousine and 24-horsepower touring car. In the new models the valves are all on one side of the engine and are actuated by a single camshaft. Ignition is by low-tension magneto, and the sparking device is at the top instead of at the side. Gilled tubing is used for the radiator; all gear shafts run on ball bearings. Brakes are of the internal expanding type.

French Racing Cars for 1906.

PARIS, Nov. 10.—Although the Automobile Club of France has declared its intention of not encouraging racing next season, constructors are evidently not inclined to abstain entirely from speed tests. Hémery's Darracq car is being transformed and will be fitted with two motors of 100 horsepower similar to those in Hemery and Wagner's cars in the Vanderbilt race, and will, by this change, be made one of the most powerful speed machines ever built. It is intended to enter it for the Florida meeting.

At the Brasier factory experiments are being made with transmission gears, and there is a probability that a racing car with propeller shaft drive and motor similar to last year's Gordon Bennett racer will be built for 1906.

The Panhard firm has not yet decided what will be done next year, but there is talk of a 140-horsepower racer.

Renault and Hotchkiss are waiting, and very probably the latter will not construct a racer at all.

The De Dietrich firm will build a new racer, but particulars of it cannot yet be obtained.

A Léon Bollée racer will be seen on the road next season, M. Emile Stern having the intention of participating in two or three of the important events of 1906.

Didn't Want Stunts.

Prospective employer—"How close to the edge of that cliff can you drive at speed?"

First candidate for chauffeurship—"Within two inches, easy."

P. E.—"And you?"

Second candidate—"I have driven within half an inch."

P. E.—"And you?"

Third candidate.—"Sure, I would keep as far away as I could, if it cost me the job."

P. E.—"You're engaged."

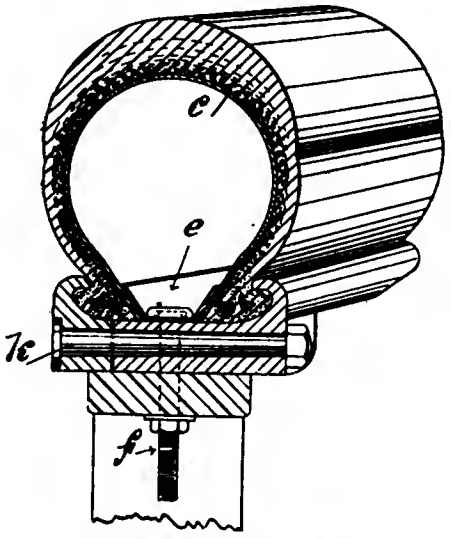
—Kansas City *Journal*.

Patents

Shock Absorber.

No. 803,589.—E. V. Hartford, of New York city.

The Hartford shock absorber, which is slightly modified from the "Truffault Suspension" by permitting a small amount of play of the springs before the friction device comes into action. The device consists essentially of two arms *11, 12*, connected by an adjustable friction joint, and pivoted at their other ends to brackets or bolts attached to the frame and axle respectively. The friction joint consists of a pivot bolt *7* and nut, between which are clamped the friction discs *4, 5*. with a leather disc between them. One arm *11* is



SANKEY TIRE AND RIM.

secured fast to its disc *5*, but the other plays between two lugs *13 14* on disc *4*, and does not move the latter till the play is taken up.

Pneumatic Tire and Rim.

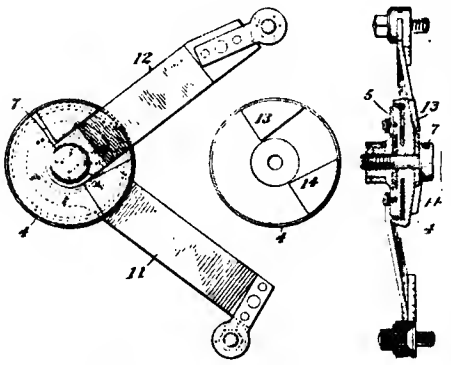
No. 803,510.—W. A. Sankey, of Sutton, Eng.

This invention consists of two parts—a split rim having one side removable by undoing the bolts *k*, for the purpose of replacing the tire, and the tire itself, which it is proposed to make air-tight by the pressure of the trough-shaped ring *e* against the edges of the shoe, no air tube being used. The shoe has a rubber lining *c*, and the trough *e* may be covered with rubber. No tire bolts are used, *f* being the valve.

Transmission Gear.

No. 803,845.—C. E. Neal, of New York city.

A transmission in which two gear ratios are obtained by the use of two sets of bevel gears and pinions on the rear axle, instead of by sliding spur gears as usual. The bevel gears are attached to the differential and are put in action by shifting both them and the bevel driving pinions. Reverse motion is obtained by another bevel gear placed to be rotated backward by the low-speed pinion. In the drawings, *13 14* are the



HARTFORD SHOCK ABSORBER.

driving pinions, which are sleeved on shaft *10* and shifted by lever *20*, with which is incorporated a locking device actuated by an attachment *24* on the pedal *16*. The driven gears *5* and *6* for the low and high speeds forward, and *4* for the reverse, are connected to the differential *41* and shifted to the right or left by lever *35*, pivoted at *36*. The hand lever *27* shifts these gears to the neutral position shown, when a change of speed is to be made, and then the pinions are shifted forward or back and the gears brought into mesh with them.

Improved Magneto.

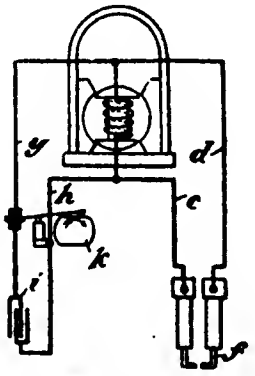
No. 802,291.—G. Honold, of Stuttgart, Germany.

A form of the Bosch magneto, in which the "H" armature revolves with no magnetic shield between itself and the pole pieces, and the spark is produced by the rupture of the armature circuit, which is closed without external resistance (*i.e.*, short-circuited) between impulses. While the armature is short-circuited, its self-induced magnetism is strong enough to divert the field lines of force from their natural direction through the armature core, and when the armature circuit is broken the sudden change in directions of these lines induces a momentary current in the armature winding, whose tension is sufficient to jump a fixed air gap. In the diagram, *g h* is the regular circuit, *k* the timer, *i* the condenser, and *c d* the path taken by the induced current through the spark plug *f*.

Carbureter.

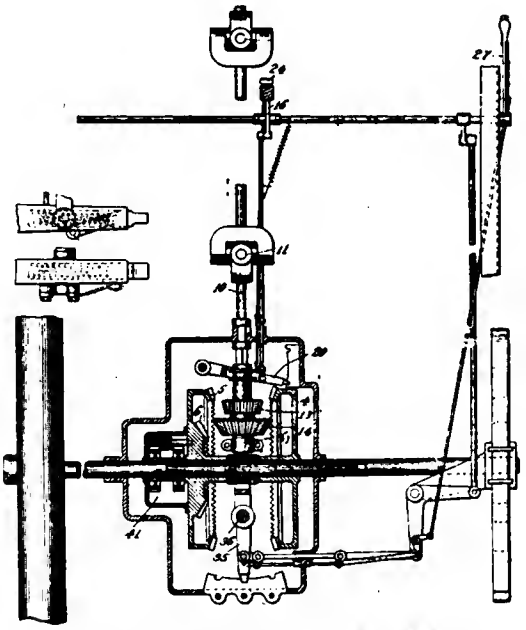
No. 804,025.—O. Minton, of New York city.

A carbureter having a float chamber (not shown) and adjustable inverted needle valve regulating the gasoline spray. There are two throttles, one at the level of the spray jet and the other at the top of the mixing chamber, and both throttles are constructed similarly, having each two slides, with partly overlapping circular holes, ar-

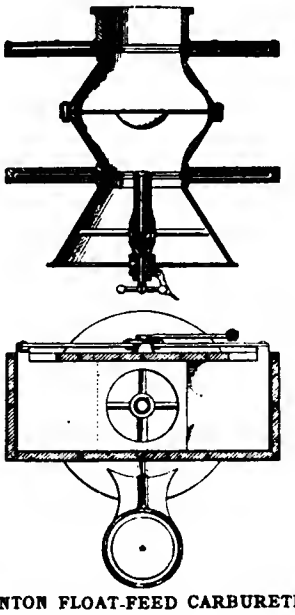


HONOLD MAGNETO DIAGRAM.

ranged to move simultaneously in opposite directions, so that the holes as they overlap constrict the aperture. The effect of this is to maintain the velocity of the air stream past the spray nozzle when the upper throttle is reduced.



NEAL TWO-SPEED BEVEL GEAR TRANSMISSION.



MINTON FLOAT-FEED CARBURETER.

THE AUTOMOBILE

VOL. XIII. No. 21

Published every Thursday by
THE CLASS JOURNAL CO.,
Flatiron Building, Madison Square,
NEW YORK CITY.

Cable Address - - - - Autoland, New York
Long Distance Telephone - 800 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2.00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 6 o'clock p. m. Monday for the issue of Thursday following.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies Printed in 1904, - - -	639,300
" " This Issue, - -	14,000
" " Since Jan. 1, -	660,000

Use of Gas Lamps in Cities.

The recommendations of PRESIDENT D. H. MORRIS, of the Automobile Club of America, in his annual report regarding the use of acetylene gas lamps in city driving, will meet with the hearty approval of considerate autoists everywhere. The function of the gas lamp is to render night driving safe, not only for the automobilist, but for other road users. On country roads, when there is not bright moonlight, gas lamps are absolutely necessary if any speed faster than a crawl is to be made in safety. It is not merely that the surface of the road has to be illuminated; even more necessary is the disclosure of unlighted horse-drawn vehicles, which are met anywhere and everywhere after dark, and in considerable numbers in the neighborhood of cities. On dirt roads, especially, the noise made by a horse and buggy (the latter often rubber tired) in motion is not distinguishable to persons seated in an automobile, and the whereabouts of the vehicle is usually indicated only by the automobilists' headlights. In the city, however, the conditions are altogether different. In the business and residence sections the streets are so well lighted that there is no difficulty in seeing the surface of the roadway and the other road users, whether afoot or in vehicles. Under such circumstances side and tail lamps, usually burning oil, are quite sufficient. In fact, gas lamps are not merely superfluous; their use is a dangerous practice. The terrific glare from a set of lamps often temporarily blinds horses and their drivers, and is also apt to startle and confuse pedestrians on street crossings and cause accidents. Their unnecessary use certainly does not tend to promote good feeling between the man on foot and the man in the car. With gas-generating apparatus in good order, there is no trouble or delay in extinguishing or lighting gas lamps, so that they can be burned only when needed.

The influence of the club members by personal example will do much to bring this bad habit into disrepute, and it would be a happy result if the recommendation were taken up and acted upon by clubs throughout the country.

✷

Mechanician or Merely Driver?

What will be the ultimate status of the chauffeur is a question that thinking men in the ranks and outside have been considering a good deal of late. His duties, his place in the body social, and his remuneration—these are queries which are of great moment to thousands of drivers, whose number is every day increasing; yet who can read the future to answer correctly? Changes in the mechanical development of the automobile are more frequently discussed than changes in what may be termed the *personnel* of automobilism. And yet the changes in the latter are going on in a regular process of evolution, though they are not so immediately recognizable as the changes in steel and iron and wood construction.

From the earliest days of the popular use of the automobile the driver has been looked upon as a mechanician first and as a pilot of the vehicle afterward. Crudities and imperfections of the earlier machines made this necessary, for it was not so much a question of running the machine as getting it to run. More recently, however, the certainty of operation of the automobile has reached a point where it is a question whether its skillful operation on the road is not really a more necessary qualification of the driver than mechanical dexterity and ingenuity. The mechanical expert at the garage is not as rare as he once was, and effective repairs or adjustments in the shop are an excellent substitute for tinkering on the road. Among the great road-racing champions it is not unusual to find that great ability in driving is not accompanied by any considerable mechanical skill.

Those who take the extreme of the view here discussed see the coachman of the future freed from the drudgery and odors of the stable and dressed in the livery of the chauffeur.

✷

Using the Motor as a Brake.

As an example of the lines along which the automobile is being developed, it is interesting to note that while the earliest automobile brakes were applied with the utmost directness—to the rear tires—the latest practice is to brake from the point farthest removed from the tires by using the engine, with ignition cut out, as a brake. Practically every available intermediate part has been fitted with a brake at one time or another, including the clutch itself, the transmission shafts, the countershaft when side chain drive is used, the propeller shaft when the drive is by bevel gears, the differential gear, the hubs of the road wheels and the rims. An objection to which the engine-braking system is open is that the disablement of any part of the driving system renders the motor inoperative as a brake; the same objection is shared by other indirectly acting brakes, and is met by the hub brakes with which nearly all cars are now fitted for emergency use. There are certain advantages, however, to be obtained from engine braking that do not follow the use of friction brakes of the ordinary types. The braking effect obtainable from an engine fitted for such work, while abundantly able to control the car within the limits prescribed by the traction of the tires on the ground, cannot be applied with the jar that follows the sudden and hard application of a friction brake, for the reason that the air in the cylinders must be compressed and the braking effect must accumulate, rapidly if the low gear is engaged, but nevertheless progressively and with every step cushioned so that the loads imposed on the driving system are no heavier than when the motor is driving the car.

The motor-braking system is attracting the attention of automobilists abroad, a number of cars having been fitted with special devices especially adapting the motor to this work; and at least one American builder recognizes the advantages of the system and arranges his controlling system so that the motor can be used as a brake.

✷

Commenting on the speed of the cars that took part in the last Vanderbilt cup race, the *Railway Age* editorially denounces not only road and track racing, but all fast driving of automobiles, winding up with the suggestion that it might be a good idea to bar from the public roads all cars capable of running faster than a certain prescribed speed. The reason given for this view is the statement that "fifty persons were reported killed or injured by automobiles in the last six weeks in Chicago alone."

Reference to public statistics show that the *Railway Age* has, apparently, been indulging in a high-speed system of multiplication. It is shown by records in the Chicago bureau of statistics that during the first *six months* of 1905 there were only two persons killed and 39 injured by automobiles in that city, while in the same period no less than 533 persons were victims of horse accidents; of these 228 were run over or struck by teams.

If the automobile is to be limited to the speed of the horse, its usefulness is practically gone, and it has little excuse for existence, for its chief merit is that it can do more work than the horse, and do it better.

Expansion Continues in Cleveland Trade.

CLEVELAND, Nov. 20.—A number of changes are occurring in local retail circles preparatory to next season's business. A number of new companies have entered the field and there will be more competition than ever.

The Standard Automobile Company, recently incorporated, has succeeded to the business and establishment of the Automobile Garage & Repair Company, a leading retail concern which, for several years, has handled the Packard, the Autocar and the Cadillac. W. C. Anderson, who was with the company last year, is president, and George S. Waite, formerly with the Royal Motor Car Company, and before that manager of the local White branch, is vice-president and general manager of the new company. The garage on Huron street is one of the largest and best equipped in the country. It occupies a building 60 by 200 feet and four stories high.

Last year the Price Brothers Carriage Company occupied part of the building as the local agent for the Baker electric line, but it will soon move into a large four-story building of its own immediately adjoining the present store, so that the Standard Company will have the old building to itself. Manager Waite is fitting the top floor with complete machine shop equipment for all kinds of repairs to bodies as well as to chassis. In the basement will be a complete charging station and battery repair department.

This year the Ford cars will be handled from a branch store located at Euclid avenue and Perry street, thus adding another auto establishment to the several on that exclusive avenue. The branch will cover the territory embraced by northern Ohio and northern Pennsylvania.

The Energine Refining Company, with $500,000 capital stock, has succeeded the Energine Company, which for several years has manufactured the product known as Engerine, a substitute for gasoline. This product has met with a very pleasing reception, having been sold all over the country, and its makers have now interested additional capital and propose to push the product on a more extensive scale. A refinery capable of producing 700 barrels a day will be erected in Cleveland. The company intends to operate its own tank cars and to open branch storage and supply stations in twenty leading cities in this country. It will have its own wagons in these cities and will distribute the product thoroughly throughout the entire country. Branches are to be established in several large cities in foreign countries also.

The Royal Motor Car Company is preparing to move into a large addition to its plant. The building is 50 by 200 feet and two stories high, built of concrete blocks. The company is installing a great deal of new machinery, and the output of Royal Tourists next season will be more than double the number made this year.

Louis P. Mooers, formerly chief engineer of the Peerless Motor Car Company, has been in Cleveland recently, arranging to dispose of his interests in that company. Mr. Mooers is preparing to go into the manufacture of automobiles on his own account. He is not fully decided as to where he will locate, but it will probably be in the East. During the past four months he has been abroad, visiting a large number of foreign factories, studying the latest improvements in the art. He has prepared plans for several sizes and weights of machines, and says he will study the market very carefully before deciding what to build.

The Winton Company's branch is erecting a fine building more than double the size of the present structure on Huron street. When completed, there will be four big automobile establishments in a row, all of them four-story buildings.

MEETING OF OLDS AGENTS.

Nearly 150 Are Entertained at Factory and Inspect New Models.

LANSING, MICH., Nov. 18.—About 150 Oldsmobile agents arrived in Lansing yesterday from all parts of the country to attend the two days' meeting arranged by the Olds Motor Works for the purpose of giving the agents an opportunity of inspecting simultaneously the new Olds models for 1906, to renew acquaintances and to discuss business prospects and methods.

All the 'busses, touring cars and runabouts in use about the factory were pressed into the service of conveying the visitors to the hotel for breakfast. Then the guests of the company were taken to the factory, where Chief Engineer Coffin, of the company, made an interesting talk about the new models, which was followed by an inspection of the factory and demonstrations of all the models for the coming season, especial attention being given to the two-cycle two-cylinder machine, which is expected to prove an important feature of the season.

Saturday morning a special train hauled the visitors to Ann Arbor to see the Michigan-Wisconsin football game. In the evening there was a banquet to the agents set in the largest room in the main factory building, which was decorated with pumpkins, hay, straw, cornstalks, squashes and other farm products symbolic of prosperity and plenty. Down one side of the room was arranged a row of red-lighted booths, giving the place the aspect of a country fair. Two long tables were set for the diners. At one end of the room a stage was erected, from which orchestral music was rendered during the supper, and later a vaudeville troup from Chicago gave an entertainment, in which a number of songs and parodies in which the Oldsmobile figured prominently were sung.

Every effort was made by the officers of the company to make the occasion both unique and memorable, and in this they succeeded admirably.

PHILADELPHIA COMBINATION

Auto Dealers' Rival Associations Amalgamate into One Strong Organization.

PHILADELPHIA, Nov. 20.—At the Hotel Hanover, this evening, there was held a joint meeting of the two rival associations of dealers in automobiles and accessories, at which nearly every local representative of the trade was present. The object of the meeting was the amalgamation of all branches of the trade here into one active organization with the object of keeping automobiling before the public by every legitimate means—such as race meets, shows, economy runs and hill climbs. The name Philadelphia Automobile Trade Association is to be retained.

The program as outlined was carried out to the letter, the dealers in accessories being admitted on an associate basis, but paying the same amount of dues as the members actually engaged in the selling of automobiles.

The election of new officers was postponed till the regular annual meeting, which is scheduled for Saturday evening, December 2.

It was decided, among other things, to hold the next show in the National Export Exposition Building, at Thirty-second and South streets, in west Philadelphia.

NOT TO BUILD AUTOS.

Officer of Smith Typewriter Company in Syracuse Denies Report

SYRACUSE, Nov. 20.—Announcements have been circulating among newspapers throughout the country to the effect that the Smith Premier Typewriter Company, of which Timothy L. Woodruff is president, was preparing to manufacture automobiles. There have been two versions of the report; one was that the sale of typewriters was to be given up in favor of the manufacture of autos, and the other that the company would continue manufacturing typewriters, and, in addition, would build automobiles in its former factory in this city, which was abandoned for a model new plant.

William Allan Dyer, secretary and treasurer of the company, when seen by a correspondent of THE AUTOMOBILE at his office, declared with emphasis that there was no foundation for the report.

"I don't know how it started," said he, "but I do know one thing, and that is that we are not making any plans to build automobiles."

Mr. Dyer said that his company had not leased any of its property, so far as he

knew, to any person who would engage in the automobile industry.

More than ordinary interest was taken in the rumor here, because Alexander T. Brown, vice-president of the Smith Premier company, is also president of the H. H. Franklin Manufacturing Company.

FINE NEW GARAGE FOR TOLEDO.

TOLEDO, Nov. 20.—A number of prominent automobile owners of this city have organized a company with the object of erecting and maintaining a large, modern garage in the residence part of the city. Plans are being drawn by a local architect for an establishment that is to be the finest garage in northwestern Ohio, if not the best in the state. They will call for a structure costing upwards of $50,000.

There has long been need for such a garage. The important ones here are at present located in the business section and are too far from the residential section to please the promoters of the new enterprise. Neither are they large enough to afford all the accommodations those interested desire. It is understood that A. A. Atwood, at present in charge of the Weed garage, will be manager, but as yet nothing definite has been announced.

There is also some talk of providing club rooms in the new building, but this is uncertain as yet. There is need for club rooms, as there are none at present and the Toledo Automobile Club has almost disintegrated on this account.

NO CHAIN MAKERS COMBINE

President C. E. Whitney, of the Whitney Manufacturing Company, asserts that there is no truth in the rumor of a probable combination of chain manufacturers which grew out of the recent meeting of chain makers in Chicago. "For some time we have been trying to work in harmony with our competitors for the benefit of automobile manufacturers, dealers, jobbers and users," he says, "and many conditions have been improved by the plan during the past two years. We have no idea of connecting our business with any combination, and therefore wish to correct any false impression which may have been given."

Arrangements are already in progress for the fourth annual automobile tournament on the Ormond-Daytona beach. "Senator." Morgan recently made a trip to Florida on business connected with the meet, and among other things will arrange for the stringing of twenty miles of double wiring for the timing apparatus, the wiring used during the past two meets being in bad condition. The expense will be divided between the local telephone company and the F. E. C. A. A. Mr. Morgan also visited Jacksonville to confer with the directors of the Pure Food exposition, to be held in Jacksonville, January 4 to 18, about an automobile exhibit that is to be held in connection with the main show.

A. C. A. Annual Meeting.

A number of important suggestions were made by President Dave H. Morris, of the Automobile Club of America, in presenting his annual report at the regular annual meeting of the club on Monday evening, November 20. Mr. Morris pointed out that, while there were about a thousand automobiles owned by members of the club, the club garage now in course of construction will provide accommodation for only 350 machines; and in order to take care of a greater number of cars than the main garage could contain, the plan of establishing garages in other parts of the city was suggested. Garages might be located on the east side, in the downtown district, on Long Island, in Westchester county and in New Jersey, so that members residing at a distance from club headquarters could be taken care of.

Mr. Morris suggested the establishment of a touring department for the purpose of supplying information to members who contemplated touring in this country or abroad. He referred to the danger attendant upon the use of searchlights in the city streets, and suggested that members do all in their power to suppress the practice, beginning by setting the example themselves. He called attention to the unnecessary amount of smoke, with its strong and unpleasant odor, emitted by many cars in the streets, and asked the members to do what they could to prevent the nuisance; and he also urged them to refrain from the use of sirens.

The report showed that much delay has been experienced in the work on the new club house on account of quicksands and water. Work is now proceeding rapidly, however, and it is hoped that early spring will see the club established in its new home.

Reference was made to the work of the club in securing for automobilists the privilege of running their cars on and off ferry boats under their own power; also to the successful second year of the New York Y. M. C. A. automobile school, which, the president said, is turning out good, reliable chauffeurs, and warrants the support of the club; to the work of the club in seeking to prevent accidents due to the infringement of speed ordinances and the carelessness and recklessness of chauffeurs; and to the fact that good work had been done in stationing guards along the main highways used by automobiles to warn the careless or unwary against overspeeding.

The Law Committee, the president stated, has been active. A book has been compiled containing all the automobile laws of all the states and territories; a bill has been drafted for a national law; arrangements have been made to furnish special counsel at nominal cost for automobilists who may be arrested, and also to furnish bail in such cases as may require it.

Officers were elected according to the regular ticket, the list being as follows: President, Dave H. Morris; first vice-president, Colgate Hoyt; second vice-president, Frederick G. Bourne; third vice-president, General George Moore Smith; treasurer, W. S. Fanshawe; governors—to serve three years, Colonel John Jacob Astor, George F. Chamberlin and Schuyler Skaats Wheeler; to serve one year, John E. Borne; to serve two years, William Pierson Hamilton.

NEW CLUB ROOMS OPENED.

Washington A. C. Members and Guests Assemble to Inspect New Quarters.

WASHINGTON, D. C., Nov. 20.—The Automobile Club of Washington opened its new club rooms in the Colonial Hotel Saturday night with a smoker, which was attended by several hundred members and guests. For several weeks a committee has been working hard fitting up the rooms, and that their work was well done was evident from the many congratulations showered upon President Duvall, Secretary Marks and the other members of the committee.

The rooms are on the second floor of the Fifteenth street side of the hotel and are reached by a short flight of steps. The hangings are of green silk and the furniture of mission style, while upon the walls are hung a number of beautiful pictures, including several photograph enlargements of interesting automobile events like the Vanderbilt Cup Race and last year's Ormond meet.

After the hand of good-fellowship had been extended, President Duvall made a short address, calling attention to the enthusiasm with which the club idea had been received and pointing out what had been accomplished by the club in the brief period of two months. He asked for the support of the members in the movement undertaken by the club to correct some abuses to which the automobilists of Washington were constantly subjected. Mr. Duvall was followed by Captain Caverly, who urged the members to turn out in full force on all club runs, assuring them that he would map out a number of interesting runs.

The A. C. of Washington is growing rapidly, and now that the 100 mark has been passed, strong efforts are being made to bring the membership up to 200.

SYRACUSE CLUB SMOKER.

SYRACUSE, Nov. 20.—The Automobile Club of Syracuse held a smoker at the Yates Hotel last Saturday night, a buffet lunch being served and a musical entertainment given. This was the first meeting since June and was well attended.

President W. L. Brown was empowered to appoint a committee of five to arrange for the annual banquet, which will be held in January. It is expected that some prominent members of the A. A. A. will be present. The club decided to erect danger signs on the roads next spring. The membership is now about 125.

Twenty-four-hour Record Broken at Indianapolis.

INDIANAPOLIS, Nov. 18.—In a twenty-four-hour race that ended here at 2.45 o'clock yesterday afternoon records from 650 miles to 1,000 miles were broken by a National car driven alternately by F. W. Clemens and Charles Merz, the latter a seventeen-year-old boy. The race was under the auspices of the Indianapolis Automobile Racing Association and was held on the track at the Indiana State Fair Grounds.

When the big car, a 40-horsepower stripped stock car, pulled up at the end of twenty-four hours 1,094 3-16 miles had been covered, breaking previous records by 78 9-16 miles. The time for 1,000 miles was 21 hours 58 minutes and 4-5 seconds, breaking Vaughn's record by 1:32:19 1-5. Times for intermediate distances were as follows:

Six hundred fifty miles, 14:08:51 2-5; 700 miles, 15:10:29 3-5; 750 miles, 16:20:25 1-5; 800 miles, 17:17:26 1-5; 850 miles, 18:23:44 2-5; 900 miles, 19:44:48 1-5; 950 miles, 20:54:50 3-5.

The average speed was 45 7-12 miles an hour and the best mile was made in 1:02 3-5.

The race started with Merz and Clemens both driving National cars, and both continued in the race until the 152nd mile, when, owing to the gas lamps not all being lighted, Clemens' car crashed through a fence. Clemens escaped without a scratch, but the car was damaged. Clemens, however, was in the winning car with Merz when it finished.

During the night the track was lighted by Presto-O-Lite gas tanks placed at twenty-five-foot intervals around the track. The night was very cold and icy blasts from the north caught the drivers on every lap. At times they were so numbed by the cold that they had to almost be lifted from the machines and carried into the judges' stand, where they sometimes had to be rolled on the floor before they could get control of the muscles of their limbs. The greatest pain they suffered was from cold to their eyes, as during the night it was impossible to wear goggles because frost would form on the lenses.

After the accident to Clemens' car it was decided that the two men should drive the other car alternately, each man driving about 100 miles at a stretch.

The most remarkable feature of the race meet held in Indianapolis on November 4 was the uniform running of the two National touring cars in the 100-mile race. It was nip and tuck between these two cars for first position through the first eighty-four miles, first one, then the other, being a few yards in the lead. In the eighty-fourth mile both cars were flagged, so that one of them could be stopped to have new tires put on. In the ninety-fifth mile one of the fresh tires burst, putting the car out of the race. The other, driven by "Jap" Clemens, won the race in the record time of 1:53:21 for the 100 miles.

With the exception of the first mile and the one in which it was flagged, this car made all of the mile circuits in from 1 m. 5 1-5 s. to 1 m. 10 s., representing a variation of less than five seconds to the mile in 100 miles. Sixty-one of the laps were made in 1 m. 8 s. or less. The principal intermediate times were as follows: Ten miles, 11:31 3-5; twenty, 22:48 2-5; twenty-five, 28:28 2-5; thirty, 34:08; forty, 45:28 3-5; fifty, 56:48 3-5; sixty, 1:08:12 2-5; seventy, 1:19:33 2-5; seventy-five, 1:25:13 1-5; eighty, 1:30:46 1-5; ninety, 1:42:14 one hundred, 1:53:21 4-5.

Both cars were strictly stock machines, stripped, and at no time up to the eighty-fourth mile was there more than fifty feet separating them. The time for the 100 miles is believed to be a record for stock cars in competition on the track.

F. W. CLEMENS IN DUPLICATE OF STOCK NATIONAL TOURING CAR THAT BROKE 24-HOUR RECORD AT INDIANAPOLIS LAST SATURDAY.

SPECIAL TRAIN FOR FLORIDA MEET.

MINNEAPOLIS, Nov. 20.—The Minneapolis A. C. is making arrangements for a special train to take its members to the Florida beach races. The train will leave Minneapolis January 19, and the members of the club will carry with them the trophy which is to be presented to the Florida East Coast Automobile Association. The presentation is to be made in honor of Asa Paine, of Minneapolis, now president of the Florida club.

It is expected that fully 100 Minneapolitans will make the journey, and special rates have already been secured. The train will consist of ten coaches, including all requirements for making a pleasant trip. The train will reach Daytona on Monday of the meet week, will be sidetracked and be used as dining and sleeping quarters of the party during the entire tournament. The return trip will commence on Saturday. Points of historic interest along the route are to be visited on the return, and an opportunity will also be afforded members of the party to visit the Chicago automobile show. The schedule provides for the train reaching Minneapolis January 30. As low a rate as $86 for the trip, including berth and meals, has been provided.

THANKSGIVING DAY RACE MEET

BALTIMORE, Nov. 20.—An automobile and motorcycle race meet will be held at Electric Park, in the suburbs of this city, on Thanksgiving Day, under the management of Howard A. French. It is expected that entries will be received both from Washington and Philadelphia, and that a larger number of cars than usual will participate in the various events.

"Chic" Thomas, a young cyclist of this city, is negotiating with the Hendee Manufacturing Company for the two-cylinder 3-horsepower motorcycle which made the one mile record at Charles River track, Boston, on Labor Day. Thomas is after the state five-mile record, at present held by Charles Callahan.

The program will include lightweight and middleweight automobile handicaps, a horsepower handicap race, a five-mile automobile open, and several motorcycle races.

SCHOOL BOARD FAVORS AUTOS.

TOLEDO, Nov. 20.—The Toledo Board of Education has adopted the automobile as the official vehicle of the board. This body makes frequent trips of inspection to the school buildings throughout the city, and after having once used an automobile, all other means of conveyance are eschewed.

Even George McKesson, business manager for the board, is partial to the automobile as a means of getting about. He uses a motorcycle all the while, except

when he takes the other members about. "I do not see how I could get along without a machine of this kind," he said recently. "I go over the city several times a week and, next to an automobile, I do not believe that there is anything that would enable me to get so much work done as a motorcycle."

TRANSCONTINENTALISTS IN 'FRISCO.

Percy Megargel and David Fassett arrived in San Francisco in the *Mountaineer* the latter part of last week, according to a telegram received last Friday at the Lansing factory of the Reo company. Both the overlanders are in good trim and are now on their homeward journey. Unless the snow is found too deep in the Sierra Nevada and Rocky Mountain ranges, the most difficult part of the first round trip by automobile from New York to San Francisco and back will soon be accomplished.

Instead of attempting to drive his machine down the coast to San Francisco, which, at this time of the year, would have meant a considerable delay, Megargel shipped the *Mountaineer* on the regular California steamer last Sunday. He will drive from San Francisco to Los Angeles, and from that place will follow the Santa Fe route east. The tourists expect to reach New York on the return trip about the middle of January.

CHICAGO CLUB COMMITTEES NAMED.

CHICAGO, Nov. 20.—A meeting of the newly elected directors of the Chicago Automobile Club was held last week and a vigorous policy for adding to the membership was outlined and discussed at length. At present the club has more than 500 members. It was also decided to appoint a committee for the purpose of looking over desirable locations for a new club house. President Farson made the statement that as soon as a site can be secured the club can raise $60,000 for erecting a building. It was also decided to elect a committee to erect road signs beyond the city limits within a radius of twenty miles.

Committees have been appointed for the coming year, some of the leading automobilists in the city being named as chairmen. The list follows: House, Robert Tarrant, Jr.; Membership, Allen S. Ray; New Club House, Ira M. Cobe; Racing, Jerome A. Ellis; Runs and Tours, Charles E. Gregory; Legislation, Sidney S. Gorham; Auditing, W. G. Lloyd; Country Crossroads Signs, T. J. Hyman; Good Roads, John Farson.

President Farson is trying to stir up enthusiasm among the members to make the trip to Ormond, Fla., for the races. It is very probable that a number of Chicago automobilists will make the trip, probably joining the Minneapolis delegation in their special train.

MOTOR CYCLISTS' REGULARITY RUN.

The regularity and judgment run of the New York Motorcycle Club, postponed from November 7, on account of muddy roads, was held on Sunday, November 12, the route passing through Mount Vernon, White Plains and Tuckahoe to Bedford, and returning to New York, the total distance being ninety miles. The road, part of which is new state highway, is good and rather hilly; though a picturesque route, it is not very much used by automobilists. The rules of the contest made it necessary to cover the distance at an average speed of fifteen miles an hour; in order to prevent loafing or scorching to make up or use up time, secret checking points were established, two outward and two inward. Entrants were required to check at Bedford on arriving and on leaving; luncheon was taken at this stop. Speedometers were, of course, barred, though cyclometers were permitted. Ten minutes' leeway was allowed at each checking point—five minutes before or five minutes after the exact time being the limits. Riders keeping within these limits were credited with perfect scores; one point was deducted for each minute more or less than the limit allowed, records being kept at all checking places. A special prize was offered for the rider coming nearest to the exact schedule, while all coming within 75 per cent. of the exact time were to receive individual prizes. Perfect scores were made by R. H. Bartsch, T. J. McLoughlin and A. Kreuder; Bartsch won the special prize, coming within eleven minutes of the exact time for the entire run. S. J. Jenkins, R. H. Nickerson, T. W. Horenburger, M. Toepel and M. Thompson qualified for the individual prizes, making scores of from 82 per cent. upward.

BLUE BOOK FOR 1906.

A revised edition of the Official Automobile Blue Book is now in preparation by the publishers of THE AUTOMOBILE, and will be issued in advance of the 1906 touring season. Since the date of the original publication of this well-known tourists' guide book the facilities for securing accurate road information have greatly increased. Clubs and club members have been gathering an immense amount of data; garages have been established by the score and have, in many instances, become centers of road information; then the various agencies in the cause of good roads have been active in collecting information, and various state and local authorities charged with duties appertaining to the country roads have been accumaulating material, all of which, properly digested and abstracted, has provided an enormous fund of information. This has been supplemented by personal surveys, especially in the vicinity of towns and cities, through which automobile routes are extremely difficult to follow unless properly described.

The scheme of arrangement of the work has been changed to conform to up-to-date requirements. To facilitate ready reference, large folded maps have been discarded, and in their place the text is freely illustrated by pen-and-ink routes and plans of the important centers from which the tours radiate. The correct route is thus graphically indicated alongside the printed description of the route, which is so subdivided by explanatory headings that the tourist can easily locate the necessary information in the guide. In addition to the description of routes, information is given regarding hotel and garage accommodation.

The complete volume will comprise three sections—New England, New York State with Long Island and Staten Island, and New Jersey and Pennylvania. Bound in flexible leather, of a size that will readily fit in a coat pocket, the complete volume will be sold for $3. Those who desire a single section can obtain it bound separately for $1. Advance orders for the book are now being taken by the Class Journal Company, Flatiron Building, New York.

HIGHWAY TRAVEL IN THE ARID REGIONS OF THE NORTHWEST AS SEEN BY MEGARGEL AND FASSETT.

AUTOMOBILE COMPANIES RECENTLY INCORPORATED.

Auto Power & Appliance Company, Cleveland, O.; increase of capital from $35,000 to $200,000.

Automobile Realty Company, New York; capital, $6,000. Directors: A. W. Pross, C. Maurer, G. J. Thomson.

Seaton Auto Tire Company, St. Louis, Mo.; capital, $150,000. Incorporators: Henry Schiel, W. F. Seaton and A. S. Doxsee.

Auto Rapid Transit Company, La Crosse, Wis.; capital, $25,000. Incorporators: A. J. Stephenson, W. J. Brayton and Philip McMahan.

Phœnix Automobile Supply Company, St. Louis, Mo.; capital, $4,000. Incorporators: W. Mulford, Edward Holmes and Freeman Wright.

Automobile Vending Co., Frankfort, Ind.; capital $10,000. Directors: T. E. Brumbaugh, O. E. Brumbaugh and M. E. Brumbaugh.

Kelley-Hunter Company, Chicago, Ill.; capital $15,000; to manufacture automobiles. Incorporators: G. L. Gray, G. P. Rowell, H. A. Ritter.

Ohio Garage and Repair Co., Cleveland, O.; capital $10,000. Incorporators: G. W. Hale, J. O. Lundy, E. T. Gibbons, H. D. Messick, I. D. Hogg.

Paxson Motor Company, Cleveland, O.; capital, $10,000. Incorporators: C. D. Paxson, Robert Drach, C. B. Solders, O. I. Leisy, A. D. Paxson.

Rockland Motor Company; livery and garage; capital, $5,000. Incorporators: T. H. Baldwin, F. W. Barker and E. J. S. Van Houten, Nyack, N. Y.

Motor Car Supply Company, Cleveland, O.; capital, $10,000. Directors: W. B. Drown, F. G. Guthrie, L. H. Drown, E. C. Gesoner, A. P. Graves

H. J. Willard Co.; to manufacture automobiles; capital, $100,000. President and treasurer, H. J. Willard; clerk, G. F. Gould, both of Portland, Me.

Hamilton Automobile Company, Augusta, Me.; to deal in machinery; capital, $50,000. President, A. P. Bibber; treasurer, W. S. Lee; clerk, C. L. Andrews.

Biddle-Murray Mfg. Co., Chicago, Ill.; capital $10,000; to manufacture automobiles. Incorporators: Ralph McShaw, John D. Black, Edward C. Maher.

Motor Directories of New York City, N. Y.; publish motor directories, etc.; capital, $1,000. Incorporators: J. A. Herren, A. P. Young and F. J. Pritchard.

Motor Vehicle Company, Newark, N. J.; to manufacture automobiles; capital, $5,000. Incorporators: Alfred A. Walsh, William F. Kimber, William P. Howe.

Scott-Rankin Company, of El Paso, Tex.; capital, $5,000; to repair automobiles and machinery. Incorporators: H. P. Scott, F. G. Rankin and E. S. Penn.

Atlantic Automobile Company and Machine Works, Atlantic City, N. J.; capital, $50,000. Incorporators: L. H. Hooper, F. A. Broadhead and C. L. Cole.

Glenville Garage & Machine Co., Cleveland, O.; capital, $5,000. Incorporators: J. L. Lewis, J. F. Kritland, C. F. R. Phillips, C. M. Phillips and Oak McCray.

McGiehan Manufacturing Company, New York (manufacture odometers and auto supplies); capital, $20,000. Directors: D. Dacosta, F. S. Sidell, S. D. Fobes.

The Union Automobile Company, Union. N. J.; capital, $10,000. Incorporators: Howard V. Weeks, Frank Hermance, H. J. Ware, H. J. Kaiser, W. A. Maltus.

The Suburban Automobile and Garage Company, Mamaroneck, N. Y.; capital, $25,000. Directors: N. J. Haines, A. Greenwood, N. D. Lawton.

Utica Motor Car Company, Utica, N. Y.; capital, $50,000. Directors: F. P. Miller, H. H. Mundy, E. J. Otis, C. H. Norris, G. H. Norris, A. B. Maynard, T. H. Ferris.

Bergen and West Side Automobile Co., Jersey City; to manufacture automobiles; capital, $9,000. Incorporators, Walter G. Russell, Albert Lanly and Minford Green.

Baker Carmerais Motor Car Company, Boston, Mass.; to deal in automobiles, etc.; capital, $10,000. President, A. E. Baker; treasurer H. D. Carmerais; clerk, A. P. Teele.

New Amsterdam Motor Company, Oswego, N. Y.; to manufacture motors, batteries, etc.; capital, $75,000. Incorporators: Charles Morgan, Joseph Troxell, E. B. Perry.

Foss-Hughes Motor Car Company, Boston, Mass.; to deal in motors, automobiles, etc.; capital, $5,000. President H. W. Knight; treasurer W. J. Foss; clerk, A. A. Knight.

The Adams-Sutton Motor Company, Portland, Me.; to deal in motor vehicles; capital, $40,000. Promoters: Walter O. Adams, David Sutton, Nathan Goold, Charles L. Foster, George H. Allan.

Automobile Import Company, Montreal, Can.; capital, $20,000; to manufacture all kinds of vehicles. The charter members include A. E. H. Crawford, F. R. Crombie and W. W. Skinner, Montreal.

Middlesex Motor Company, New Brunswick, N. J.; to manufacture automobiles, motor cars, bicycles and bicycle parts; capital, $50,000. Incorporators: H. Clark Saunders, Louis A. Voorhees and Charles A. White.

NEWS AND TRADE MISCELLANY.

The American agency for Panhard cars has joined the uptown flight of New York automobile agencies. and will soon be established in new quarters at Broadway and Sixty-second street, where a new building of four stories and basement will be occupied. There is a total floor area of 27,000 feet, a frontage of 89 feet on Broadway and of 87 feet on Sixty-second street. The place will be devoted to sales and repair work and will contain no garage. Showrooms and offices will be on the first and second floors and repair shop and stockrooms above.

The Correspondence School of Automobile Engineering, formerly of Akron, O., has moved to New York city, and is located in the Flatiron Building, Madison Square. Incidental to its change of address, the school has been incorporated under the laws of the State of New York with a capital of $30,000. R. E. Olds has succeeded A. J. Saalfield as president; R. M. Owen has become treasurer in place of E. R. Adam, and Robert H. Montgomery is secretary instead of G. S. Rowe. Victor Lougheed will continue as vice-president and general manager.

Announcement was made on Saturday, November 18, of the sale of the Indiana Automobile Company, of Indianapolis, to Crawford Fairbanks, who at once took possession. It is understood and is not denied that Mr. Fairbanks is acting for other parties, whose identity will not be made public for several days. The Indiana Automobile Company is one of the oldest automobile concerns in Indianapolis. Until Mr. Fairbanks took possession the concern was a stock company. It has taken the Winton agency for 1906.

Efforts are being made to induce Harry Houpt to match Montague Roberts in the six-cylinder Thomas Flier against Barney Oldfield in the new Peerless racer, which has been undergoing a tuning up on the Atlantic City beach during the past week. When approached upon the subject, Mr. Houpt said that Roberts now holds the record, and that when Oldfield breaks his figures Roberts will try again.

The Cleveland Motor Car Company expects its new model to be out next week. The car is rated at 30-35 horsepower. Last year the Cleveland was a 20-horsepower car.

The case of Frank E. Hodge, chauffeur for R. M. Gulick, the theatrical manager, who ran down an Italian named Pocci on July 20 in Schenley Park, Pittsburg, was settled last week in the local courts by Hodge paying the victim $1,250 and the costs of the criminal case, in which he was charged with felonious assault and battery. The Italian took his money and departed for his native land.

William Lamb, erstwhile chief salesman, has been appointed manager of the Fisk Rubber Company's Detroit branch. E. H. Broadwell, in the capacity of vice-president, will continue to look after Fisk interests in the Middle West.

L. G. Martin, the Oakland (Pittsburg) automobile dealer, has let a contract for the erection of a two-story brick garage, 40 by 127 feet. Mr. Martin will handle only the Rambler next year. Besides the two 1905 surrey types which are carried over, there are five new Rambler models, including a surrey, a runabout and three new cars having vertical four-cylinder motors and sliding-gear transmission.

A contract has been let for the building of a macadam road between Lansing, Mich., and Agricultures College, to cost $12,000. The Reo and Olds companies donated $500 toward the fund, and many auto enthusiasts gave smaller amounts.

The Hiland Automobile Company, of Pittsburg, has broken ground for its new garage at 5809-5815 Center avenue, East End, which will be ready for occupancy about March 1. The structure will be of brick and steel, 88 by 115 feet, and will stand thirty-five feet from the building line on a lot 100 by 150 feet. It will have two stories and a finished basement and the walls will be strong enough for the addition of two more stories later. The engine-room will be in the basement and an elevator will run from this to the second floor. The offices and salesrooms on the second floor will occupy 3,500 square feet. A 50-horsepower engine and generator will be installed. The entire outlay will be $50,000. The officers of the company are: President, Dr. John A. Hawkins; secretary, F. T. Saupp, Jr.; treasurer, Dr. George A. Urling; manager, W. A. Richwine.

Webb Jay has actively taken charge of the Chicago agency of the White steamer, having arrived in the Windy City the early part of the week.

Dr. D. D. Culver, a practicing physician of Aurora, Ill., has invented a doctor's runabout automobile, and a company called the Practical Automobile Company, of Aurora, has been incorporated by D. D. Culver, Thomas Greer and Merrick Edwards to manufacture it in that city. The machine is called the Practical. The main features are an air-cooled motor and direct drive on the wheels from the countershaft. The doctor has been at work on the machine for two years and says that his ideas have been patented. A temporary building has been secured for experimental work. If success is attained a permanent building will be erected and the manufacture of the machine for the market will be commenced.

St. Paul and vicinity will undoubtedly soon have some excellent roads, thanks to the persistent efforts of the owners of automobiles. In the budget which is soon to be passed by the city council there is an item of $60,000 to be expended for permanent improvements to existing thoroughfares. St. Paul and Minneapolis will probably be linked together by an excellent macadam highway.

The greatly increased demands made upon the Diamond Rubber Company by the tire trade, as well as its other branches of trade, have compelled the company to arrange for a large increase in its facilities and working capital. It has taken out a new charter in Ohio, transferring from West Virginia, and increasing its capital stock from $1,750,000 to $3,500,000. The company's business has increased greatly, and several additions have been made this year to the plant in Akron. No changes in the styles or makes of Diamond tires are contemplated, as the company is well satisfied with the tests that the tires have been put to the past year, both in endurance and speed contests.

Walter C. Baker, of the Baker Motor Vehicle Company, has become interested in the Mathews Boat Company, of Bascomb, Ohio. This concern has been engaged for several years in the manufacture of gasoline launches and it has turned out many large cruising launches. It is understood that the plant will be greatly enlarged and that the company may remove to some lake- or seaport town.

The next convention of the New York and Chicago Road Association, to be held next March, will probably be held in Hornellsville, N. Y. Chairman W. L. Dickinson, of the committee on location, has recently written to Mayor Charles, of Hornellsville, with regard to the matter, and the Chamber of Commerce has decided to extend a formal invitation to the association.

Baltimore will shortly join the list of municipalities which are employing automobiles for public business. At a recent meeting of the park board the president of the body was authorized to purchase an automobile for use of members of the board and for showing Baltimore's outdoor recreation places to visitors. The make of car to be purchased has not yet been decided upon.

A company subsidiary to the Decauville Automobile Comptny, of New York, has been formed under the name of the Gaulois Tire Company, to handle the Gaulois tire, a French product which is said to bear an excellent reputation in France. Paul L. Snutsel is manager of this and also of a second subsidiary company, the Dac Automobile Supply House, which will have the sole American agency for the Luthi spark plug, the Pognon spark plug and Dupont's siren horn, and will carry as well a full line of ignition apparatus and automobile supplies.

L. A. Mitchell, for several years a salesman with the Decauville Automobile Co., of New York, and who rode with Guy Vaughan in the remarkable 1,000-mile track run made in a 40-horsepower Decauville racing car, has been appointed assistant secretary of the New York Baseball Club. He will do much of his traveling in a 30-35-horsepower Decauville car purchased for the use of club officials.

Prof. Charles M. Barber, for the past year in charge of the history department of the Lansing, Mich., high school, has resigned his position to accept the post of sales manager for the Reo Motor Car Company in the City of Mexico.

Frank B. Stearns, of Cleveland, who was severely injured by a collision of his car with a farmer's wagon and the overturning of the machine a few weeks ago, is on a fair way toward recovery, but it will be several weeks before he can be out to attend to business.

The Norris N. Mason Company, 32 West Thirty-second street, New York, American agent for the Léon Bollée cars, has announced its ability to execute promptly all orders for 1906 Bollée cars, and to make delivery on date contracted. In order that the company might be able to make this assurance, orders for bodies were placed as early as last August, and are now being executed by Rothschild & Kellner, of Paris, and Locke & Co., of New York.

Hollander & Tangeman, who are the exclusive agents for the Fiat automobiles in the United States and Canada, have closed a contract with the makers of this car for 1,500 Fiat automobiles, to be taken in a period of ten years. With the beginning of 1906 a stock company is to be formed, to be known as the Hol-Tan Company, who will take over this business.

The Acme Motor Car Company, of Reading, Pa., has been purchased by a number of capitalists for the reported sum of $250,000. Frank A. Devlin, of Chicago, and his son, A. A. Devlin, who formerly represented the Acme company in Chicago, were the prime movers in the transfer, and will, to a great extent, control the new company.

Thomas A. Egan and F. G. Grinnell, of Narragansett Pier, R. I., will establish a garage in connection with the Clarendon Hotel, at Sea Breeze, Fla.

The C. Z. Kroh Manufacturing Company, of Toledo, O., makers of auto tops, will remove about December 15 from the present location at 120 St. Clair street, to the new building now being erected on Jackson avenue, between Twelfth and Thirteenth streets, where the company will have double its present capacity.

The Milburn Wagon Company, Toledo, O., states positively that, contrary to reports recently circulated, it is doing nothing in the way of building automobiles.

W. S. Austin, of Grand Rapids, Mich., has brought out a device for preventing the severe and quick recoil of the springs when a car is traveling over rough or uneven roads. The device, which is very simple and readily adjusted, allows the spring to depress easily, but retards it going back to place.

The Jackson Body Company, Jackson, Mich., manufacturers of carriage and automobile bodies, is in the hands of Z. C. Eldred, receiver, under a trust mortgage.

O. W. Anderson, 511 Masonic Temple, Minneapolis, Minn., is interested in a company which expects to build 100 automobiles during the coming year. A location somewhere in the Twin cities is now being sought.

The Stirling Automobile Company, late of 51 Woodward avenue, Detroit, Mich., and which handled the agency for the Pierce and Studebaker cars, has discontinued business.

J. P. Schneider, 187-189 Jefferson avenue, Detroit, Mich., has relinquished the Peerless and Buick agencies, and has taken on the Pierce.

Charles H. Grant has resigned the management of the Ford retail store in Detroit and taken a position with the Buick Motor Company, and after making a trip through the South in the interest of this company will take up the management of the Detroit branch, which the Buick company will shortly open.

J. A. Swinehart, of the Swinehart Clincher Tire and Rubber Company, returned to Akron, Ohio, November 13, from an extended trip in the West in the interest of his tire. Among the cities visited were San Francisco, Oakland, Salt Lake City, Denver and Kansas City. Mr. Swinehart reports that there will be an exceptionally large business on the coast and in the Western states by automobile builders the coming season.

Alexander Winton and Harold Anderson, of the Winton company, left last week for Europe. They will take in the London and Paris shows.

Ralph Temple has added the National car to his list and will handle this car in Chicago in addition to the Reo, Premier and Panhard machines. The National was formerly carried by the Hayden Automobile Company.

The Bennett-Bird Company, 1404 Michigan avenue, Chicago, in addition to handling the Corbin cars, has taken the agency for the Dolson line, and will represent the Dolson company in the middle west.

The Detroit Motor Car Company, Detroit, Mich., has secured the agency in that city for the Peerless cars, and is temporarily located at 170 Jefferson avenue.

A. S. Robinson, formerly sales manager with Charles A. Duerr, is now connected with Harry S. Haupt, who has the New York agency for the Thomas car.

A new garage now being erected in Detroit is that of the North Woodward Garage Company. The building is being erected at 18 Piquette avenue, and is to be two stories in height, 30 by 130 feet.

THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, NOVEMBER 30, 1905—CHICAGO No. 22

FOX HUNTING WITH AN AUTOMOBILE.

NASHVILLE, TENN., Nov. 24.—Prof. J. F. Draughon, of this city, is a great devotee of the chase. He keeps a pack of thirty fox hounds at his residence, four miles out from the business center of town, on the Granny White Pike, where he has entertained hundreds of friends from Nashville and other cities. In his pack are some of the best-blooded dogs in the country, and all of the animals are subject to registration. The professor knows the best hunting ground for miles around this section. The best of it lies from fifteen to twenty miles from the city. Now, Professor Draughon is a very busy man, being president of his system of two dozen business colleges, located in fifteen different states. The executive duties that devolve upon him in connection with them impose a heavy mental strain that necessitates recreation, which is considered just as essential to his health and ability to dispatch his work as are wholesome food and sufficient sleep. But it was found that frequent indulgence in his favorite pastime caused too much loss of time, owing to the inability to get quickly from his home to the scene of the chase with his pack of hounds.

Being the owner of an automobile and familiar with its time-saving qualities, the professor hit upon the idea of making his trips in the car and taking his pack of dogs with him in a trailer coupled on behind. He designed a special trailer, which was built by J. J. Anderson, of this city, to be attached to the auto by means of a coupling resembling a railroad car coupler. The screened body of the four-wheeled trailer has room for twenty dogs, and there is an upper deck, in which tents, saddles and other paraphernalia are carried. In a lower compartment are packed heavy cooking uten-

END OF AN AUTOMOBILE FOX HUNT IN TENNESSEE.—THE QUARRY BROUGHT TO BAY.

sils and similar articles. The photographs herewith, taken during a recent fox hunt, give a good idea of the appearance and arrangement of the outfit. Now when the professor arranges for a hunting trip at some distance he sends his horses to the hunting ground in the afternoon; and when he and his friends arrive in his automobile with the dogs, the horses are saddled and the dogs let out of the trailer fresh; the fox is soon going, and the race is on in earnest. After the chase, by special signal, the dogs are called in and get into the trailer, and in a very short time the hunting party has made its return to the city. If any of the dogs are lost or are slow in coming in, one of the colored men who attend to the dogs remains behind and brings them in. By this plan not more than thirty minutes is usually required in getting in from the hunting ground, fifteen to twenty miles from the city. Thus the distance between home and hunting grounds has been materially reduced, as the auto with the trailer attached can make from twenty to twenty-five miles an hour over good roads. Now the owner finds that he can leave his business late in the afternoon and reach the hunting grounds on time, without worry or the loss of any of his dogs before reaching the place selected. In certain sections of the country where he knows the run of the fox he finds no occasion to ride to the hounds, as he can often remain in his car and hear the dogs run for hours without losing a minute of the chase.

It is believed that this interesting innovation by Professor Draughon will result in enabling many equally busy men to enjoy such sport who otherwise would be debarred from it because of the loss of time.

The professor and his family have just returned from a 200-mile trip in his 1905 White, which was purchased through the Southern Automobile Company, of this city. They visited Bowling Green, Russellville and other places in Kentucky without the loss of any time on the trip for repairs to the car.

FAST CARS FOR FLORIDA.

Leading Builders and Prominent Sportsmen Planning to Compete for Records.

Much interest in the Florida tournament to be held from January 22 to 27 on the Ormond-Daytona beach, is already shown by manufacturers, agents and prominent amateur drivers. There is some uncertainty and speculation regarding the probability that William K. Vanderbilt, Jr., will again be a competitor for the mile straightaway record which was taken away from him last winter by Arthur Macdonald, with the Napier. On the one hand, it is intimated that Mr. Vanderbilt may drive the 200-horsepower racer that is being built at the Darracq works in France. Manager McWilliams, of the F. A. LaRoche Company, who sailed for Europe last week, is expected to bring this car back with him in time for the tournament. On the other hand, it is hinted that Mr. Vanderbilt may stick to the Mercedes and drive a special new racing machine that is under construction in the Unterturckheim works. The hope is entertained at the German works, it is said, that the special trophy offered for the car that shows a record of two miles in one minute may be won with this car.

Foxhall P. Keene and S. B. Stevens are mentioned as wealthy sportsmen who may be expected to compete for the record. Walter Christie is building a new 120-horsepower racer especially for the tournament Unlike the previous models of equal power this is to be driven entirely from the front pair of wheels instead of having the power divided between the front and rear pairs.

A new six-cylinder Napier of high power is to take part in the events and defend the mile record now held by this English make. Clifford Earp, who won a number of racing successes with the Napier during the continental tour last summer, may pilot the car on the American strand.

Lancia and Fletcher are expected to take part in the events with Fiat cars, and it is likely that the Itala car will be seen then for the first time in competition in America, driven by Fabry.

The big air-cooled Premier racer built for the Vanderbilt Cup race, is to be handled in Florida, it is said, by George Robertson, who drove the Christie in the eliminatory race on Long Island, and Carl Fisher will enter the thirty-mile American championship and the 100-mile free-for-all for the Indianapolis cup, with the new 60-horsepower National.

Two events, an amateur handicap and an amateur championship, both at ten miles, have been added to the programme of events for the Ormond-Daytona beach tournament, as published in THE AUTOMOBILE of November 2. Entry blanks are now ready and may be secured from W. J. Morgan, 116 Nassau street, New York; entries close at noon, January 8. The tournament commences January 22 and ends January 27, though the meet is subject to postponement in case of stormy weather. There will be no cash prizes, all prizes being either medals or plate.

RAILWAY MOTOR CARS IN MARYLAND

BALTIMORE, Nov. 25.—Officers of the Washington, Frederick & Gettysburg Railway Company have practically decided to use gasoline motor cars on the new road that the company is building between Frederick and Thurmont, in Frederick County.

The new road was originally intended for an electric road, but the officers have been in correspondence with that department of the Union Pacific Raiload Company, which has had charge of the operation of the motor cars used on the U. P.'s lines in Nebraska, and they find that the use of gasoline cars will save the road a great deal of money, both in construction and operation, obviating the need of overhead wires and a power plant.

The distance between Frederick and Thurmont is about fifteen and a half miles. It is proposed later to extend the road to take in other villages in the county.

PROFESSOR DRAUGHON WITH HIS TOURING CAR AND SPECIAL TRAILER LOADED WITH PACK OF FOX HOUNDS.

TENDENCIES OBSERVED AT OLYMPIA SHOW.

From Our Own Correspondent.

LONDON, Nov. 17.—The Olympia show to-day reveals in a marked way the fact that the British manufacturer considers himself sufficiently advanced to strike out in new lines of construction, regardless of Continental and American practice. In fact, the show seems to mark the commencement of an era in which the accepted lines of the present day automobile will be no longer adhered to, but from the parent stock will be evolved special types to suit almost every possible demand.

Considering the mechanical points first, the most interesting feature of the show is the extraordinary variety in the types of motors themselves. Nothing less than four cylinders is common, except on the smallest cars, while six-cylinder engines have made a big advance in favor. Napiers naturally adhere to this type—more than 80 per cent. of the output of the firm for 1906 will be fitted with six-cylinder engines—and Ariel, Belsize and Rolls-Royce cars have followed suit. The new six-cylinder Panhards attract considerable attention, and a 30-horsepower six-cylinder Clément is expected to be on view almost at once, while the new 30 Gladiator will have six cylinders.

Finality has not yet been reached; the Rolls-Royce firm exhibit their new eight-cylinder engine, which, developing 28 horsepower, should be delightfully smooth running on account of the even torque. An eight-cylinder 120-horsepower marine engine is on view from the firm of Chas. Birks, Ltd., and no doubt others of this type will be soon in evidence. The use of ball bearings right through the car is becoming general, but several firms—notably the makers of the Argyll car—rather incline towards the use of roller bearings. Horizontal engines—discarded long since by the French maker—are in favor with Wolseleys, James & Brown, Singers and others, but on the other hand Wolseleys adopt vertical engines for all powers above 12 horsepower, and the makers of the Lanchester car have deserted the horizontal type for the vertical.

One of the most interesting points is the relative proportions of shaft and chain drive. The British, and somewhat to a less extent the French, makers have hitherto been inclined towards the use of the chain, but this year a big increase in the number of users of live axles is here evident. The new C. G. V., the 15-horsepower Siddeley, nearly all Napiers and many new cars now employ the live axle.

In the matter of gear boxes and gear changes there are two opposing tendencies. As a direct result of the Tourist Trophy Race, several cars—Rolls-Royce, Minerva, Vauxhall—have increased the number of speeds to four, the third speed, on which most of the driving is expected to be done, being direct drive. On the other hand, the Rolls-Royce cars fitted with the eight-cylinder engine have but two speeds, and of these the low speed is intended to be required only in exceptional circumstances, such as starting on a steep hill. The four-cylinder car of the New Engineering Co. also has only two speeds, and this indicates the tendency to make the engine as flexible as possible.

An increased use of the magneto is in evidence—both high and low tension forms. In most cases both magneto and battery ignition are fitted, but some makes rely on magneto alone. Where the battery is used, a single coil and a high-tension distributor seem to be preferred to the use of four coils.

The honeycomb radiator seems to have lost public favor; the greater number of cars on show were fitted with the gilled tubes. Another interesting return to former practice is seen in the increase of the size of wheels, 34 inches diameter being used in many cases.

The old type of drip lubricators worked by pressure feed from the exhaust is being superseded by a positive driven oil pump which discharges the correct amount every revolution. This should cause an abatement of the "over-lubrication-and-smoky-exhaust" nuisance. The number and variety of clutches are increasing. The multiple disc type is greatly favored, and metal-to-metal clutches are common.

Although a commercial rather than a technical matter, the matter of guarantees, which has become prominent at this show, is worth mention. Very few makers previously give a definite guarantee for their cars except the understanding that the car is in working order when leaving the factory. Many firms have now announced their determination to guarantee their goods against constructional and material defects for varying periods, generally six months, but in one case this is even extended to a period of two years. This new step is useful in indicating that the manufacturer is now able to place absolute reliance on his productions and that the time of experiment is passed.

The quality of the carriage work has improved in a marked degree and greater scope is given to the ingenuity of the body builder by the almost general adoption of covered-in bodies. The show has been humorously styled a "landaulette show," and there is ample reason for this remark in the number and variety of enclosed bodies adopted.

The tonneau rear entrance body is almost extinct, side entrance bodies of varying types being in favor. On many small wheelbase cars the front seat beside the driver is made to swing round on a pivot and permit the passengers to enter the tonneau through the space thus opened out. The general tendency throughout may be said to lie in the direction of increased comfort both of passengers and driver, the latter being relieved of much inconvenience by the placing of the control levers on the steering wheel and the arrangement of gear and brake levers within easy reach. Increased care has been taken in fitting up the car in such a way that all adjustable parts are accessible without trouble, the contact breakers being in many cases either on the dashboard or right at the front by the starting handle.

Altogether, the show may be said to be very interesting and to demonstrate an increasing tendency on the part of the manufacturers to depart from recognized custom and to strike out on new lines for themselves. This movement can have no other effect than to cause far more rapid progress in the industry during the next few years than if all plodded contentedly along in the same path, attempting nothing but to perfect one type of automobile.

Leading British Cars at the Show.

LONDON, November 17.—At ten o'clock this morning the Olympia opened its doors on the first of the new season's shows. This is the second show held this year by the Society of Motor Manufacturers and Traders—a body which includes as its members the principal manufacturers and agents of motor vehicles in Great Britain. On the whole, the show can well be said to be far more representative than any of its British predecessors. At the third exhibition in February last there were 248 exhibitors, while now just over 300 firms occupy stands, and many more, unable to find room, have had recourse to the Stanley show, which is being held at the same time. The Olympia show is undoubtedly international in character, for fifty-one foreign firms are represented—either direct or through their agents. A detailed examination of the exhibits reveals the extent to which the foreign manufacturers—and in particular the French—have been compelled to rise to the occasion in the matter of date. Hitherto the Paris Salon de l'Automobile in December has been the first exhibition at which patterns for the succeeding year have been on view, and in consequence thousands of English

automobilists have journeyed to Paris for the occasion. This has been materially detrimental to the best interests of the British manufacturer, as many Englishmen looking out for new cars have placed their orders at the Salon rather than wait a couple of months for the opening of the British show. By fixing the date of their exhibition for November, however, the Society of Motor Manufacturers and Traders have forestalled the Salon and compelled French makers to show their new models in self-defense at the present show, rather than run the risk of losing British orders by waiting till the forthcoming Paris Salon, December 8 to 24. This line of reasoning on the part of the management has been fully justified, and to-day practically all the leading French models for 1906 were on view—with the notable exception of the Richard Brasier firm, which were not represented. The British manufacturer is now at least on an equality with his French rival, and the British agent benefits in the matter of the orders for new French models.

The show was roughly divided into four classes—pleasure cars, commercial vehicles, motor boats and accessories. The first section naturally predominates, but a surprising advance, both in quantity of exhibits and their high quality, is visible in the second section—doubtless owing to the tremendous advance in the matter of mechanical transport which is now commencing in Great Britain. The motor boat section is not far behind in importance, and as regards interest, perhaps takes second position. The big Napier Major gives the annex the appearance of a graving dock, while the presence of several well-known racing boats lends additional interest.

In the matter of general beauty the Olympia show makes no pretense of rivaling the Salon. The structural magnificence of the Grand Palais gives to the latter a big lead, which is increased by the elaborate stands erected by the French firms. Olympia is itself more useful than artistic, and the stands of the English makers are in general quite in keeping with this idea. The beauty of the Clément and Delaunay-Belleville stands is very marked—the latter having taken first prize at the last Paris show—but the huge wrought-iron structure of the Daimler Company comes a close rival. Several other English stands are more artistic than usual—that of the Argyll Company being surmounted by a big model of part of their new works (which, when completed, will be by far the largest in Great Britain).

The stand of the "White" steam cars is imposing and attracts much attention. It consists of an oval sign with radiating edges, the word White being inscribed in silver letters on a blue ground. An efficient scheme of illumination at night creates an attractive effect. The novelty on the Mercedes stand must not be forgotten—especially since it has made its presence felt in an unusual way. A huge two-sided canvas depicts in varied hues two scenes of London thoroughfares—in winter and in summer—the car which is the subject of the advertisement being naturally predominant.

The exhibits present in many cases features of considerable novelty and many constructural tendencies are noticeable; these will be mentioned later. The British exhibits show, individually and collectively, the great progress which the native industry has made during the past year. On most of the leading British stands both the design and quality of work compare favorably with French productions, and in the cases of many firms—Napier, Rolls-Royce, Daimler, Ariel—it would be an extremely difficult matter to state in what respect the cars of these firms were inferior to a Panhard, a Mercedes or a Richard Brasier.

As regards separate exhibits, it is impossible to give even a short account of all the points of interest, but two or three examples may serve to show the tendencies of the 1906 season.

The Daimler Company—which has had a remarkably successful year—has made the startling announcement of a big drop in prices, made possible by standardization and not by reduction in quality. The new model introduced last season — the 35-40 horsepower—had a wonderful run of successes at the race meetings, and this model will be the main line for 1906. The four cylinders are cast in pairs, and the valves are placed all on the one side, inclined at an angle to shorten the length of the inlet and exhaust parts. A leather-faced cone clutch is used, and gear-box of the usual sliding type, giving four speeds and reverse. All models are made in three lengths of wheelbase. The price has been reduced to $4,400 and the 28-36-horsepower chassis drops from $3,500 to $3,000. A magnificent 35-40-horsepower model is on view, which has been built to the order of H. M. King Edward—being the seventh Daimler owned by His Majesty. This has a covered phaeton body to accommodate four inside, and, of course, the carriage work and finish are superb. The types are the new 150 mm. (6-inch) Continentals and look huge.

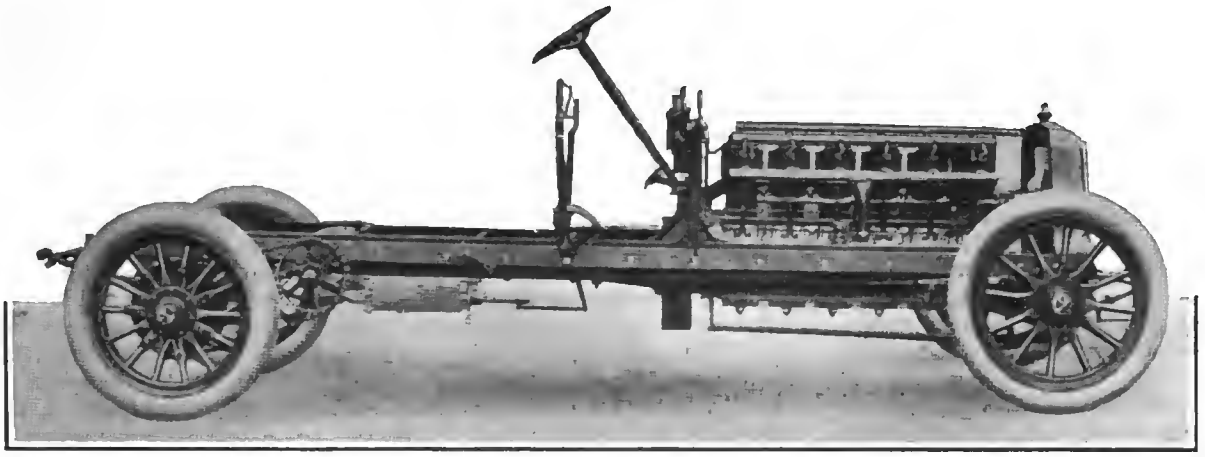
The new Napier model is 40 horsepower, six cylinder, and this was to-day the center of much attraction. The chassis frame is made of pressed steel and the flanges are widened at the points where the frame narrows forward to permit of a big lock. The engine has cylinders cast in pairs and the valves are operated from the one camshaft. The hydraulic carbureter is governed in the usual Napier manner by the pressure of the circulating water. Synchronized ignition is, of course, necessary and the high- and low-tension distributors are on the dash driven by a spindle from the camshaft. The Napier clutch has automatically lubricated metal surfaces and the car can easily be started on top speed if desired. In fact, following on the recent long runs by this car on top speed without gear change, it was expected that only two speeds would be employed on the 1906 models, but, nevertheless, three and reverse are fitted. The 24- and new 60-horsepower models are staged and it is interesting to note what little change has been made from previous seasons. An 18-horsepower Napier landaulette shows a tendency to depart entirely from usual practice. The engine is placed under the driver's seat, and the bonnet is abolished, leaving additional room for the body. The suspension is three point; a transverse spring fitted at the rear of the frame to which the ends of the ordinary road springs are attached. The rear springs are fixed to two short live-axle sleeves which are united by an arched solid axle. On the inside of these short live-axle sleeves are attached the chain sprockets and brake drums. The driving sprockets on the differential shaft are also fitted inside the frame, so that the entire transmission is out of the way, affording a much more convenient entrance to the carriage body. The landaulette body itself is slung on C springs and leather braces to insure the greatest possible comfort. A refinement introduced on all Napier cars is an arrangement of levers by which the carbureter can be flooded for starting without lifting the bonnet.

The Brotherhood Crocker car made its first appearance at the last show and has now been increased to 40 horsepower. This car has jumped into the leading rank at once on account of the workmanship and ease of control. A Bradley multiple disc clutch, working in oil, is employed, and also the Bradley coil, which is fitted with a small magnet, causing a rapid and positive single make and break instead of the usual rapid vibration. An interesting feature is the foot control by means of a large foot pedal sliding horizontally and operating the variable lift of the inlet valves.

The Wolseley and Siddeley firms, which were united during the early part of this year, have several new models, which depart but little from previous practice. All Wolseleys over 12 horsepower now have vertical engines; a distinct departure from the usual custom of the firm of fitting only horizontal engines. On the new 15-horsepower Siddeley shaft drive is employed for the first time and double ignition is standard. New 35- and 100-horsepower models are introduced, but these, as is the case with the English makers in general at this show, keep to the same construction as in the late models.

A new car on the market which embodies many good features is named the Iris. This car is fully guaranteed for two years, in accordance with one of the features of this show, though no other maker extends his liability to such a period. The two models are 25-30 horsepower and 35-40 horsepower, showing that there are some makers who still think it desirable to build for the wealthier classes only.

Two important novelties are introduced by C. S. Rolls & Co., one of which is a car



CHASSIS OF NEW PANHARD SIX-CYLINDER 50-HORSEPOWER CAR EXHIBITED AT LONDON SHOW.

named the "Legalimit." This is designed to run at a constant speed of twenty miles an hour, whether uphill, downhill or on the level, without change of gear and without any attention from the driver, who attends to the steering solely. The engine fitted is the same as that used on the other novelty —the Rolls-Royce landaulette, which has been designed to compete with the electric broughams, that are such familiar objects on London thoroughfares. The form of these vehicles naturally prevents the use of a bonnet and vertical engine in front, and the makers have solved the problem by designing the present engine, having inclined cylinders, eight in number. Each cylinder is 3 1-4-inch bore and 3 1-2-inch stroke, giving about 28 horsepower. An impulse is obtained every quarter of a revolution, resulting in an evenness of running surpassing the steam car and approaching the electric motor very closely. The cylinders are in two rows of four, and the valves are placed vertically, shortening the valve pocket. Each row of four cylinders is fired on a separate circuit by its own synchronizer and coil, the two synchronizers being on the same shaft and so causing the cylinders in the two rows to fire correctly relatively to one another. A gear-driven pump sends the allotted amount of lubricating oil to the bearings and obviates the possibility of causing a smoky exhaust. The change-speed gear is abolished, or nearly so. All ordinary driving, including starting, is done on the normal gear; but in case a stop were made on a very steep hill, an emergency low speed is fitted. A reverse is also, of course, necessary. The engine, as might be expected, is delightfully smooth running and vibration is almost entirely eliminated. On the Legalimit car—the significance of which name is readily apparent—is a system of governors to keep the speed constant, but technical details are not yet made public. A bonnet is fitted on this car and the whole vehicle is built remarkably low. This new engine should mark the limit of multiplication of cylinders, for it hardly seems possible that any appreciable increase of comfort would be gained by further increase.

Another car which departs from accepted lines is the Lanchester. The four-cylinder, 20-horsepower engine is placed between the two front passengers, and this arrangement permits of plenty of accommodation without extending the wheelbase. Worm shaft drive, magneto ignition and surface carbureter of the wick type are employed.

The general tendencies everywhere are reduction in price and the use of four-cylindered engines on cars as low as 8 and 10 horsepower. Unlike the French maker, who caters for the wealthy classes and can sell as many high-powered cars as he can turn out, the English manufacturer looks to the middle classes for support and trade, and the evolution of the present type of car bears out this fact in an interesting manner. There are, of course, many English cars of high speed and price, but the majority of makers keep to moderate horsepower and size.

As regards steam cars: About the sole English steam car is the Turner Miese; and in competitions this type has proved itself quite as efficient as its gasoline rivals. Kerosene is used as fuel, and this is to be preferred to gasoline, as even in outlying places a supply of kerosene can usually be obtained.

French Cars at Olympia.

LONDON, Nov. 17, 1905.—As was expected, the holding of the English show this year in advance of the Paris Salon has caused the French makers—depending to such an extent on British orders—to exhibit their 1906 models a month in advance of the usual time. Practically all the leading French manufacturers—if we except the Richard Brasier firm—are represented here, and their new models are on view for the first time. Panhards are to be seen on several stands, and, as was expected, the principal novelty of this make is the six-cylinder, 50-horsepower model. The cylinders are cast separately and have a bore of 125 mm. diameter and 150 mm. stroke. On one of the chassis exhibited the cylinders were cast in the usual way; the other had steel cylinders and copper water jackets. The valves are arranged on each side of the cylinder and have inspection covers held down by yokes. The frame is steel plates reinforced with wood and the engine is carried on an angle iron underframe. Eiseman high-tension magneto ignition is used. The carbureter is hydraulically governed. A multiple disc clutch enclosed in the flywheel transmits the power through a gear-box giving four speeds and reverse. The gear-box shafts are run on ball bearings. The other models are 35, 24 and 15-horsepower, four-cylinder, and 8-horsepower, three-cylinder.

Mors cars are built in several new models. The 17-horsepower, four-cylinder has bore of 87 mm. and stroke of 125 mm., and the other powers are 28 and 45 horsepower. Ball bearings are fitted throughout, except in the main engine bearings. The clutch is metal-to-metal contracting type. An additional set of brakes is fitted on the sprocket shaft, and these are applied by the side lever at the same time as the back wheel brakes, the former coming into play slightly in advance of the hub brakes. A small push lever projects from the radiator, and on pushing this, when starting the engine, half compression is obtained.

The new De Dietrich models were on view at the stand of Messrs. Jarrott & Letts. The 24- and 40-horsepower models have not undergone much radical alteration from their 1905 form; the inlet and exhaust valves are now on the same side of the engine and are worked from the one camshaft. The honeycomb radiator has been discarded and an improved type of gilled radiator substituted. Ball bearings are fitted throughout the gear-box, the gears being of the sliding sleeve type. The carbureter is pressure fed, and in place of the small auxiliary tank on the dashboard, a hand pump is fitted to raise the pressure when starting. The new light model 12-15 horsepower has four cylinders 90 mm. bore and 120 mm. stroke. This has high-tension Simms-Bosch magneto ignition, leather-faced cone clutch and sliding gears.

The new De Dion models show that this firm have no intention of following the general custom of adopting the four-cylinder engine for low powers. The new 6-horsepower has three speeds and reverse, and in addition to the 8-horsepower model, which is unchanged, a new 9-horsepower, single-cylinder car, 110 mm. bore by 130 mm. stroke, has been introduced. The motor it-

self looks immense in size, owing to its internal flywheels. This model has a pressed steel frame and is made in two lengths of wheelbase.

Renault's new 10-14-horsepower, four-cylinder car was exhibited together with 1905 patterns of higher horsepower, and the Pilain car made its first appearance in England. This 20-horsepower car has direct drive on both third and fourth speeds, obtained by the use of a special differential gear with sliding bevels.

Charron, Girardot & Voigt have brought out a new 14-18-horsepower car for 1906. On this car drive by cardan shaft is employed, and it is claimed that nearly all the driving can be done on top speed. The engine and gear-box are carried on a sub-frame and three-point suspension is arranged. A big point is the suspension, which is effected by C springs, giving greatly increased comfort. The other new models are 20, 30, 50 and 90 horsepower.

Darracqs have built two new powers for 1906. The 10-horsepower, two-cylinder engine has bore of 100 mm. and stroke of 120 mm., and the new 22-30 horsepower has four cylinders, 112 mm. by 120 mm. The details of the cars are unaltered from last year; the 1905 pattern, 8- and 15-horsepower cars, are still made.

Although, of course, not a new French model, details of the latest Mercedes cars may be well inserted here. In 1906 the standard powers will be 20-25, 35, 45 and 70 horsepower. All engines have ball bearings on crankshaft and low-tension magneto ignition, magneto being direct driven. A new improved clutch is fitted and a completely new model gear-box. The brakes are adjustable by the fingers and a decompressor is fitted, giving half compression on all four cylinders.

Other later details of these cars will be interesting, but this short résumé will show the main features of the new season's models, and well shows the prevalent tendency of catering for autoists who desire a car of moderate power, which will not make a heavy expenditure for upkeep.

Dufaux Places Kilometer Record at 23 Flat.

PARIS, Nov. 14.—The official record for one kilometer, flying start, was reduced yesterday on the road between Arles and Salon by a Swiss Dufaux car piloted by its constructor, Frederic Dufaux, assisted by the mechanic, Descombe. The time for the kilometer was exactly 23 seconds, or an average speed of 97.25 miles an hour, being two-fifth seconds lower than Rigolly's time with a Gobron Brillié on the Dourdan road.

In the course there was a rise of 2 meters, 470 millimeters (nearly 100 inches), and when the record was made the ground was not in the best of condition, being wet and sticky because of recent rains.

The Dufaux car is the four-cylinder 150-horsepower vehicle built by the Geneva firm for this year's Gordon Bennett race, but withdrawn owing to a misunderstanding with the French club. Michelin tires were used.

Although the official record is lowered by this performance, in reality the fastest time over the kilometer was made in 1904 by Baras on a Darracq, who covered the distance at Ostend in 21 2-5 seconds. That course was not officially recognized at the time, and although it has since been adopted by the Automobile Club of France, Baras' time still remains unrecognized because he covered the distance in one direction only, whereas for an official test it must be covered in both directions and the average taken.

Rules for British International Auto Boat Cup Race.

Copies of the conditions and rules for the British international cup race for auto boats for 1906, formerly known as the Harmsworth cup race, have been printed and distributed by the Motor Yacht Club, 119 Piccadilly, London. This organization was formerly the Marine Motor Club, founded by the Automobile Club of Great Britain. The conditions and rules for next year's race are those adopted at the last meeting of the cup commission, held September 11 last at Archachon.

The Motor Yacht Club is trustee of the cup, which is to be competed for annually by not more than three boats from any one country, each of which must be built wholly in the country that it represents.

Except that it must be wholly mechanical, no limitation is put upon the form or nature of the motive power.

Boats representing a country must be selected by a recognized club of that country, the helmsman must be a member of the club and all hands must be natives or naturalized citizens of the country.

All arrangements for the race and all expenses in connection with it must be assumed by the club holding the cup for the time being. Any questions arising from the running of the race shall be dealt with by an international commission.

The cup is to be handed to the club represented by the winning boat at the conclusion of the race and is to be held by that club for one year or until the next succeeding race, unless called upon by the trustees after the expiration of twelve months. The club holding the cup or trophy as custodian must insure it in the sum of $2,500 against fire, loss or damage.

The race must be held over a course of not less than thirty nor more than thirty-five nautical miles, each circuit to be not less than five nautical miles and no angle less than 120 degrees.

All competitors will be given a flying start at the same instant, five minutes after a preparatory signal.

The only limitation of size of any competing craft relates to the over-all length of the hull, which must not exceed 39 feet 11 1-2 inches.

There is no restriction as to number, size or power of the engines except that each boat must be fitted with mechanical power that will drive her astern at not less than four knots in still water.

Should none of the competitors be able to complete the course at an average speed of twelve knots, for any reason whatever, the race is to be abandoned for the day and run again on a day to be agreed upon, but not more than three days later. If only one boat is then ready, it shall go over the course and be adjudged the winner.

If any boat meets with an accident or derangement of the machinery necessitating assistance from other than those in the crew, it can take no further part in the race.

Each competing boat must carry at least two life-buoys in position ready for use.

Should no challenge be received by the club holding the cup before February 1 in any year, no race shall be held for the cup that year, and in no case shall a race be held within six months of the receipt of a challenge. The last date at which an entry may be received is July 1 in any year.

English Tourist Trophy Race.

The A. C. G. B. I. has issued the regulations governing the 1906 race, which will be run off in the Isle of Man, probably in the early part of next year. In general the conditions are the same as for this year, but various detail alterations are made. The fuel allowance has been fixed at one gallon of gasoline for every 25 miles in the case of ordinary internal combustion engine cars; but steam cars will be allowed one gallon of liquid fuel (description not specified) for every 16 2-3 miles. The chassis weight shall not be less than 1,300 pounds, but no maximum weight limit is imposed. The total load, including the body, the driver and one passenger, must not be less than 1,100 pounds. The body must be a standard type for four passengers. To prevent the use of abnormal gears, these are limited in number to four speeds forward and reverse, and the car must be capable of being driven at 12 miles an hour on the level on top speed, without manipulation of the clutch. It must also ascend a hill of 1 in 6 on a forward gear. Cars may be entered by members of any recognized automobile club, not more than two cars by one manufacturer being allowed to enter. $100 per car has been fixed as the entry fee.

A snake-skin auto coat is said to be the latest fad of a rich automobilist who is having the skin of an anaconda worked up into a pliable, warm and watertight garment. The skin is a handsome, warm brown color with golden brown spots.

Calculating the Power of a Gasoline Engine.

By RENE M. PETARD.

EASY calculation of the power of a gasoline motor has always been a greatly-looked-for convenience. The problem, which is quite a simple one with steam engines, becomes extremely complicated when the internal combustion motor comes to be considered.

The factors which in such a power producer cause variations in the output of the machine are not only innumerable, but, besides, their action is essentially variable under other varying conditions, so that it can safely be said that in the present status of our experience and knowledge of the combustion engine we cannot but obtain an extremely uncertain and subject-to-controversy notion of what the possibilities of a given engine will be.

The only absolutely certain way of knowing the work to be expected in a given time from a given engine is the brake test; and that is a difficult process, requiring special and elaborate contrivances, as well as a great deal of skill and carefulness on the part of the operator.

Confining the present study to mere theoretical conditions, we find, as already mentioned, that the phenomena which take place in the cylinder of an explosion motor are much more complex than those taking place in the cylinder of a steam engine. The intensity of the explosion, the rate of propagation of the ignition wave are intimately dependent upon the quality of the explosive mixture, which varies with every engine, and which varies for each engine with a number of conditions, such as condition of the atmosphere, quality of the liquid fuel, etc. Other variable items may be found in the expansion curve which varies with the point of ignition, the mass of the charge which varies with the outer atmospheric pressure, so that a motor will evidently not give the same results if it be tried on top of a mountain or at the bottom of a mine. And yet the important factor of wall temperature has not been mentioned. How, then, can it be expected to obtain a simple formula that will take into account all these different conditions and follow the variations of the motor's output when the conditions vary in an unknown manner?

Indicator diagrams, if procurable, would be of great assistance in planning out the required formula. But yet a number of constructional details of the greatest importance would still be left whose influence would make all other work absolutely vain. Among these we find the parts, diameters and situation, the shape of the combustion chamber, the position of the sparking apparatus, the disposition and the length of the piping, and numberless others.

The French engineers, however, although perfectly aware of these difficulties, have endeavored to obtain formulas that would give fairly correct or approximate results. In order to preserve the original form of these formulas, we shall retain the metric units for which they were conceived, leaving to the reader to convert them into the English sizes of any motor that he may want to consider.

In the following formulas the characteristics of the machines will be designated by the following letters:

d=bore of cylinders in metric units.

c=stroke of pistons in metric units.

n=number of cylinders.

N=speed in revolutions per minute.

F=power in French horsepower (75 kilogrammeters; that is, 75/76 of the English horsepower).

Before going further into the subject, it may be well to state that one of the leading French experts, M. Hospitalier, found that in vertical engines the actual piston displacement was practically constant for all engines reasonably well designed, the variation between the extremes being of not more than 20 per cent. for a given power. He found it to be 6 to 7.50 liters per French horsepower, which gives us:

$$\frac{3.1416\ d^2\ cnN}{120\ F}=0.006 \text{ or } 0.0075 \text{ cubic meter.}$$

from which we obtain

$$F=4.36 \text{ or } 3.49\ d^2\ cnN.$$

MM. Vigreux, Milandre and Bouquet consider that the safest course in ordinary circumstances is to take the formulas as:

$$F=3.49\ d^2\ cnN.$$

M. Ringelmann, from considerations too lengthy for the frame of the present article, gives:

$$F=3.37\ d^2\ cnN.$$

While M. Witz, one of the best experts in France, gave:

$$F=2.8\ d^2\ cnN.$$

This gentleman also gave a more complete and elaborate formula, in which enters the mean pressure in the cylinder and the mechanical efficiency K of the engine; this formula is:

$$F=KNp\frac{3.1416\ d^2\ c}{9000}$$

in which p represents the mean pressure.

It should be noted that the coefficient K varies in well-made machines from 75 to 80 per cent.; that is, 0.75 or 0.80.

If we apply these different formulas to a known example, for instance, the 40-horsepower (nominal) Mors engine of 1905, we have:

Four cylinders—bore 125 mm.—stroke 150 mm.

Normal speed—1,200 RPM.

We obtain:

Vigreux formula—39.40 horsepower.

Ringelmann formula—37.92 horsepower.

First Witz formula—31.56 horsepower.

Second Witz formula—32.00 horsepower.

These formulas give results much below the reality, since the engine gives an output of 56.74 horsepower on the brake at 1,200 RPM.

We should, however, consider that these formulas were devised for low-speed engines, while speed is one of the most important variables in the performance of an engine.

Our contemporary, *Engineering*, has, however, given, a long while ago, under the signature of a French engineer, a formula which, although empirical and devoid of any scientific foundation, gives very satisfactory results, however, for high-speed automobile motors, although it is overestimated for low-speed engines; it is the following:

F=total cylinder capacity in liters × speed in RPM × 0.0064.

For the Mors engine referred to it gives:

F=56 HP.

which is extraordinarily close to what the actual brake test gave.

Glidden Tour for 1906.

Announcement of the general plans for the next Glidden tour, as decided upon by the special committee of the American Automobile Association touring committee, was made last week.

The committee has accepted the invitation of the Automobile Club of Buffalo to have the tour start from the home city of the present holder of the trophy—Percy P. Pierce—and has named Buffalo as the starting point. The tour is to start on July 23 and continue for a fortnight.

As Canadian automobilists are eager to have the tour include Canadian territory this year, and the Toronto Automobile Club has extended an invitation to make that city a stopping place, the route has been laid through Niagara Falls and across the river into Canada. On the other side of the border the principal cities to be visited are Hamilton, Toronto, Kingston, Thousand Islands, Ottawa, Montreal and Quebec. From Quebec the tourists will re-enter the United States, going south to Poland Springs, Me., thence traversing the White Mountains country which was visited last July, crossing Vermont to Lake Champlain, then turning south through Saratoga and Albany and following the Hudson down to New York City. If found necessary, after exploration, this route will be modified in some particulars.

As Buffalo is a convenient starting point for automobilists in the Middle West, it is believed that the number of participants in this year's tour will be large and the event a great success. Already many Westerners have signified their intention of taking part. The country through which the route selected lies is famous for its beauty and is well provided with first-class hotels.

It is not improbable that the run will embrace several other competitions besides that for the Charles J. Glidden touring trophy.

Redd—Is he given to blowing his own horn?

Green—Oh, no; he has a chauffeur.—Yonkers *Statesman*.

New Ideas in French Lamps.

THE famous automobile lamp makers of France, who have brought their products to a high degree of perfection, are not yet content with the results of their endeavors, but are constantly striving to produce lamps that shall meet every requirement imposed by the conditions of travel. It has long been recognized, for instance, that the blinding concentrated rays of the acetylene gas searchlight are unsuited to the conditions of street travel in cities where pedestrians and drivers of other vehicles are blinded and confused by the light when approaching and passing. Better to meet the requirements for a diffused light for city streets without sacrificing any of the qualities of the projected rays needed for fast driving over good country roads, a lamp, the Besnard projector, has been brought out in France, where it has thus far had a year's successful use. The details, which are in reality very simple compared with the difficult nature of the problem, are fully shown in the accompanying illustrations, for which we are indebted to *L'Automobile*.

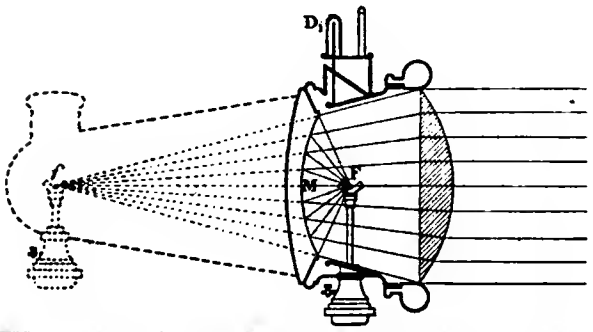


FIG. 1.—SECTION OF BESNARD LAMP SHOWING LONG-FOCUS EFFECT OF PARABOLIC REFLECTOR.

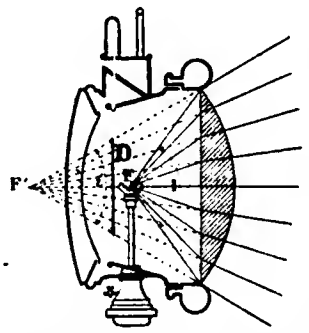


FIG. 2.—SHOWING SHORT-FOCUS EFFECT OF ECLIPSING DISC.

The lens is plano-convex, of the hyperbolic type, the form of the projected beam varying with the position of the light at one or the other of the two foci of the hyperbola. With the light placed at the longer focus *f*, as in the broken lines of Fig. 1, the rays would be projected in the solid horizontal beam of the searchlight. With the light at the shorter focus F^1, the rays are diffused, as in Fig. 2, as in the common locomotive headlight or with any ordinary form of parabolic reflector. In order to move the light from one focus to the other, a very long body would be necessary in the lamp, as indicated by the broken lines in Fig. 1, with some complicated mechanism; the same end is achieved, however, in a very simple way.

The lamp is of the proportions shown by the heavy lines, the back being formed of a hyperbolic mirror *M*, Fig. 1, having the same foci *f*, *F*, in common with the lens. A metal disc *D*, Figs. 2 and 4, is pivoted on an arm, permitting it to be swung upward into a hood on top of the lamp or to be dropped to a position just behind the light. When the eclipsing disc is raised to the position D^1, Fig. 1, the rays from the light at the focus *F* are received by the concave mirror *M*, and reflected on the lens in the same direction as though they came directly from a light at the imaginary point *f*, the other focus. When the disc is dropped to the position *D*, Fig. 2, the light is cut off from the mirror and projected direct through the lens, as though coming from F^1, the center of the hyperbola.

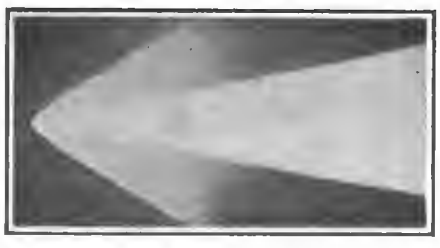


FIG. 3.—SEARCHLIGHT EFFECT PRODUCED WITH DISC RAISED, AS IN FIG. 1.

The effect produced when the eclipsing disc is raised and the light is at the long focus is shown in Fig. 3, in which the rays are projected far ahead in a condensed beam. When the disc is dropped, all of the rays are diffused at the wider angle over the whole area in front of the car. Fig. 4 shows the lamp with the front lens swung open, exposing the burner, the long-focus reflector and the short-focus disc lowered into position between them, corresponding with Fig. 2, to produce the diffused light desired for city use of the car.

For convenience in operating the disc, a small lever is attached to the steering posts of the car, and from this a Bowden flexible steel cable leads to a short lever on the lamp, which can be seen just above the hinge of the open front in the photograph. When a pair of these lamps is used, the lever of one is connected with that of the other by a light connecting rod, so that both will move simultaneously. The change from diffused to projected beam, or *vice versa*, can be made instantly by the driver, and the mechanism is adapted to both acetylene and electric lights.

An entirely new type of lamp has recently been perfected in France by Bleriot, who claims to have made the first practical acetylene gas lamps for automobiles and whose "phares" are well known in all automobiling countries. It is expected that the new Bleriot lamp will create something of a sensation at the Paris Salon in December.

Instead of burning the gas of carbide of calcium and water, the new "Phare Bleriot" burns commingled gasoline vapor and oxygen which is directed in a blast upon a pastille or small block of infusible mineral which is raised to a dazzling incandescence by the heat. The general form and construction of the two styles of lamp body are apparent from the photographs reproduced in Figs. 5 and 6, from *L'Automobile*. No generator is employed in connection with them, but a small quantity of gasoline is carried in a pair of angular reservoirs attached to the sides of the lamp and a small steel bottle of compressed oxygen is carried in a box in any convenient place on the car.

Referring to Figs. 7 and 8, from *The Autocar*, the gasoline is fed through a small lead to a tube *O* containing a filtering substance, and thence past the regulating valve *N* into a chamber *F* in the holder *A*. In the center of this holder is supported the pastille *B* of zirconia osmium or other rare infusible earth. Passing down the chamber *F*, in which it is vaporized by the heat, the gasoline enters the chamber *D*, separated from chamber *E* below by a diaphragm *G*. Oxygen under pressure in tank *I* is admitted through a pressure reducer *J* and the lead *H* to the chamber *E*, whence it passes through a fine duct *M* into the nozzle *C*. The force of the jet of oxygen acts like an injector to draw the gasoline vapor from *D* through *C*, where it mingles with the oxygen. Being ignited at this point, the flame impinges upon the pastille *B* and raises it to a temperature that causes a brilliant white incandescence. The form of the burner in which the action described takes place is seen in the aperture at the back of the lamp shown in Fig. 6.

FIG. 4.—BESNARD LAMP WITH ECLIPSING DISC LOWERED INTO POSITION.

It is necessary before lighting the lamp to heat the holder *A* with a small pad of cotton saturated with methylated alcohol until it will vaporize the gasoline when turned on slightly; then the oxygen is turned on and the pastille quickly becomes incandescent, producing a very powerful and penetrating light.

This system is fitted to lamps of special

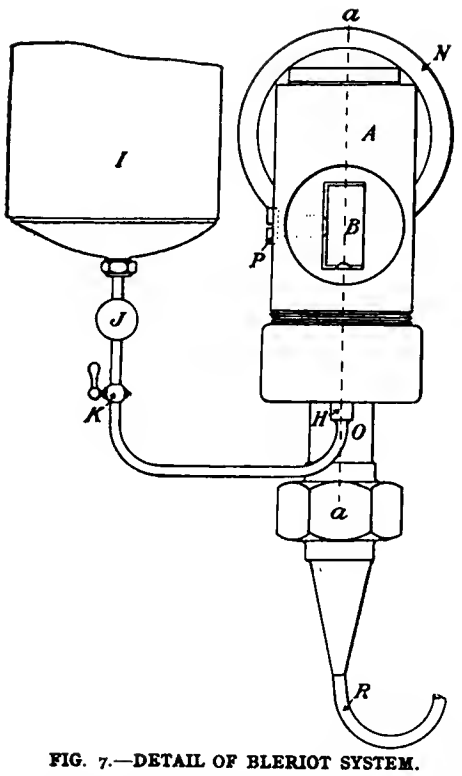


FIG. 7.—DETAIL OF BLERIOT SYSTEM.

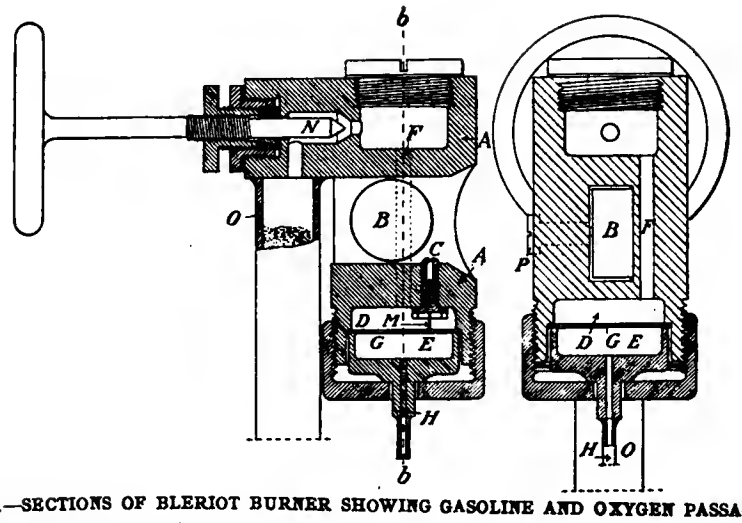


FIG. 8.—SECTIONS OF BLERIOT BURNER SHOWING GASOLINE AND OXYGEN PASSAGES.

A, Metal holder for pastille. B, Pastille of zirconia or other infusible earth. C, Burner jet. D, Gasoline vapor chamber. E, Oxygen chamber. F, F, Passage for vapor from F to E. G, Diaphgram separating chambers D and E. H, Passage for oxygen from E to D. I, Oxygen tank. J, Pressure reducer. K, Cock. M, Oxygen lead to burner. N, Gasoline valve. O, Gasoline filter. P, Set screw to adjust B. R, Gasoline lead from small reservoir.

design that throw the rays straight ahead in a narrow beam, but which have a shutter by means of which the light can be instantly shaded when desired.

Though the lamp is apparently an ingenious construction and likely to give a splendid light when the mechanism functions properly, many persons will doubtless prefer to use the simpler and more certain American method of carrying a flask of compressed acetylene gas for use with the ordinary form of projector.

GENIUS NIPPED IN THE BUD.

That all brilliant schemes do not succeed, was proved in an amusing way last week in Brooklyn, the *terra incognita* to Manhattanites at the far end of "the Bridge." One Schultz, who is in business "over there," and who owns an automobile, conceived a clever plan for advertising his business. He attached to the running gear of his car a large idle wheel, which he shod with a tire having molded on the tread large letters setting forth his name, the nature of the goods in which he dealt, and the street address where they might be purchased. A reservoir of whitewash and a revolving sponge in contact with the tire kept the faces of the letters supplied with a coating of printing material.

Private trials having shown that the arrangement would work well, Mr. Schultz started out with his machine one day and drove over all the streets he could find in Brooklyn paved with asphalt. When he finished his tour he had left his advertisement imprinted boldly upon about forty miles of city streets. He was still metaphorically patting himself on the back, when in walked a messenger deputy from a street cleaning commissioner, who had come across his trail, and presented a warning that if Mr. Schultz attempted to repeat the trick he would probably fall into the clutches of the police, who had already been asked to be on the alert for him.

Thus was genius rudely nipped in the bud.

WOMAN FIGHTING FOR A CAR.

MENDOTA, ILL., Nov. 25.—That a woman will fight for her automobile as she would for a pet is shown in an odd case that is now pending in the Illinois courts.

An Illinois concern had levied on a machine said to be owned by George L. Scheutz, of this place. The auto was taken out into the country and stored in a barn.

Mrs. Scheutz discovered its whereabouts and got out a writ of replevin, setting up the claim that the car belonged to her. The case came to trial in Judge Austen's court. The Judge gave the decision to the woman. The other side then set up the claim that Judge Austen was without jurisdiction, the value of the car being more than $200. The case has now been taken to the Circuit Court, where Mrs. Scheutz has planned to follow it. She says she will take it to the Supreme Court, if necessary.

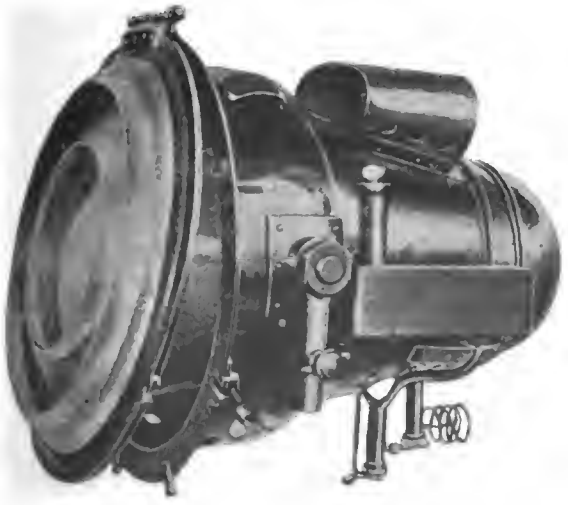


FIG. 5.—BLERIOT SEARCHLIGHT, BURNING GASOLINE AND OXYGEN.

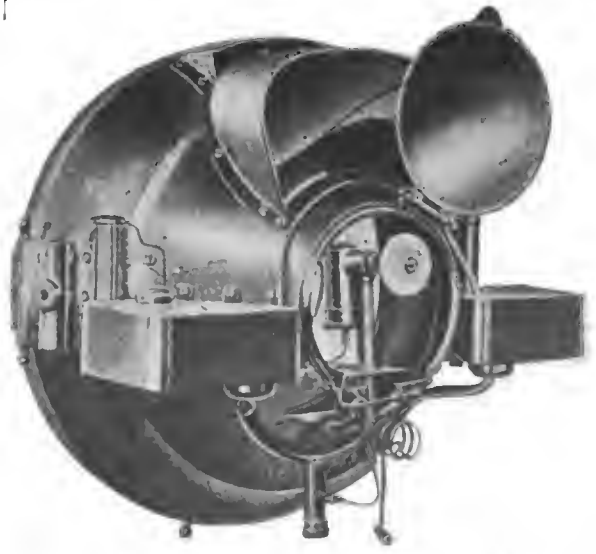


FIG. 6.—GRAND PROJECTOR, SHOWING ARRANGEMENT OF BURNER.

American Automobilists in Cuba.

FEW cities in the United States rival Havana as a center of good roads for automobile trips, says a writer in the New York *Sun*. This is true as regards the distances which may be covered, the smoothness of the roadbed and the general picturesquesness of the scenery. There are many localities in the United States whose scenic beauty would make the Cuban landscape by comparison seem flat and insipid, but not many of them can be visited with comfort in a touring car.

The exact figures of the total length of what may be called the good roads leading out of Havana are not immediately available, but a general estimate indicates more than 200 miles of such highways, including only those which are macadamied and kept in general good condition by the constant work of the *camineros,* or permanent force of road repairers.

It may not be said that all of these highways are at all times kept in perfect condition, but the intention and effort is to keep them so, and the occasional lapses serve only to emphasize the general success. Usually little if any less than 90 per cent. of the total might be traversed with the greatest comfort, so far as smoothness is concerned, at a pace of forty or fifty miles an hour. That speed calls for a good roadbed.

The longest of the possible automobile runs follows a generally southwestward course, into the Province of Pinar del Rio, to San Cristobal, where it terminates very abruptly in what is, during the rainy season, a mudhole. At some time in the near future this road will be continued to the city of Pinar del Rio, a hundred miles from Havana. From there another road will run northeastward to Bahia Honda, where connection will be made with another road, a considerable part of which is already completed, by which Havana may be reached via Cabañas and Mariel.

Barring a few isolated bad spots, the present road to San Cristobal may be traversed with as much comfort as the roads of Central Park, and at much greater speed than is possible in the Park.

The route is out of Havana by its seaside ward, el Vedado; across the Almendares River on a pontoon bridge; and up the hill to the plateau used as a camp site by the American troops in 1899. Beyond this lie the closely joined towns of Quemados and Marianao. On the western edge of Marianao the road winds down a short and somewhat steep hill, with a sharp turn to cross a high stone bridge to the village of La Lisa. Here, at about ten miles from the center of Havana, the real country is reached. This is no new road. The Spaniards built it years ago. They built it, as they did most of their roads in their colonial possessions, as a military highway to facilitate the movement of troops. Before the war of 1895 it was an avenue along which rich planters built their homes. The section was once an important sugar area, but exhausted soil and the cultivation of new areas in the middle section of the island have so crowded it by competition that it shows to-day no more than a small part of its former greatness. But it is, and doubtless always will be, a fruit producing district, and the source of supply of the world's finest cigar tobacco, the famous Vuelta Abajo leaf.

At the time of the American occupation the area showed something of what it had been. The evidence appeared in its ruins. Where there had been a mansion, an estate, there were only fire wrecked walls and devastated fields. To-day many of these walls are not even discernible, while those which do remain visible are only weed and vine covered masonry, whose piles of crumbled wall, with occasional unbroken columns and arches, make picturesque subjects for the tourist with a camera. Not one of the great houses has been rebuilt. The work of Antonio Maceo and the Spaniards, the rivals in the process of destruction, was done thoroughly.

But the old Spanish highway along which Campos and Weyler and Blanco sent their troops against the insurgents, and along which Antonio Maceo and his daring band swept their reckless and fiery way, is still there, and, unless too much delayed by the huge country wagons, whose drivers will persist in going to sleep, the automobile driver may cover it, if he wishes, in a couple of hours from La Lisa to San Cristobal.

From La Lisa to Guanajay, fifteen miles or so, the roadway is level except for two or three short bits where it climbs or descends some gently rolling hill. Beyond Guanajay it enters a section, around Artemisa, which has long been known as "the garden of Cuba," an area of marvelous richness and fertility of soil. Beyond that there comes a belt in which the palmetto, the indication of poorer land, takes the place of the *palma real*, the evidence of a

A STRAIGHTAWAY STRETCH OF GOOD MACADAM ROAD, IN CUBA, WHERE AUTOMOBILING IS YET IN ITS INFANCY.

superior soil. Then comes the good land again. Through it all there runs the road, for about thirty-five miles, with hardly a perceptible rise or dip, smooth and hard. At Guanajay a branch road strikes off to Mariel and Cabañas, fifteen miles or so distant, on the north coast. This roadbed is excellent, but it crosses two or three ranges of hills, though none of them is at all difficult. Two or three other roads branch from the main route at points along its way, but they are short spurs and of no special interest.

In other directions from the city there are runs of from ten to forty miles, to Cojimar, to Managua, to Bejucal, and to Guines. Each has its special interest or attraction, and all of the roads are good. The Bejucal road runs through Santiago de las Vegas, a small place, where a vast number of dogs will do their best to get under the wheels. A branch from this road, near San Antonio de los Baños, climbs the hill to the mounment under which Antonio Maceo is buried.

The Cojimar run, a short one, takes the tourist through a section of the suburbs of Havana where there may still be seen, on the tops and sides of the hills, the earthworks and entrenchments thrown up by the Spaniards to guard the city against an assault by Maximo Gomez and his troops. It runs through the city of Gaunabacoa, and ends in the little shore village of Cojimar, with its quaint and picturesque little fortress on the water's edge.

Six years ago all this country about Havana was dotted with the Spanish blockhouses about which so much was said during the war. Few of them are left. Their absence as picturesque features in the landscape may be a cause for regret, but they were offensive reminders of an unpleasant experience, and the Cubans have torn them down.

Although all of these roads have their bits of particular beauty, the road to Guines unquestionably leads them all in that respect. This appears not so much in a superiority in general landscape views as in the immediate surroundings. It is an old road, and at frequent intervals the trees which border it have attained a large growth. Their interlacing branches form long tunnels of cooling shade. The dark green of the Indian laurel is at this season interspersed with the gorgeous brilliance of the royal poinciana and the graceful fringed blossom of the algarroba.

Each road has its towns, the typical towns of Cuba, having length, but no breadth, a string of one-story houses set immediately on the edge of the roadway, with the open fields behind them. It takes quite a town in Cuha to have side streets. If the driver of the machine be a respecter of dogs, his life will be a burden in a run by daylight, and filled with constant apprehension during a night trip. They sleep in the streets, and charge the car from corners, gutters and doorways. The record thus far indicates that, whatever care he taken, an increase in the number of automobiles will considerably reduce the canine population of Cuba. But the island can spare a good many without serious loss.

It is also difficult to escape all of the chickens. They will try to upset a machine by getting in front of it. But, as annoyances to an automobile driver, these are the veriest trifles when compared with the ox wagon, whose motive power crawls slowly along in the middle of the road while the driver, sound asleep on his seat, is not to be roused by either the horn or the voice. It is useless to say anything to him when he is at last awakened. He cannot understand English or American profanity, and the Spanish provision in that line is quite unsatisfactory for American use.

Although the automobile sometimes menaces his life, sometimes kills his dog or his chickens, and often annoys and offends him in a variety of ways, the Cuban regards the machine philosophically and, on the whole, quite goodnaturedly. It is one of the strange contrivances used by those hurrying Americans, who, whether they have reason or not for doing so, can never get quickly enough where they wish to be. If a halt is made in town or hamlet, a crowd soon gathers, deeply interested in seeing water poured into the tank or a nut or a screw tightened up. On the road, the foot passenger will probably get as far as possible from the *carro del diablo;* the horseman will usually plunge into the gutter, or up a bank, or into a thicket, where he will dismount and hold firmly by the bit a horse who would hardly wink if the machine were to explode alongside him. If an accident happens, as they sometimes do with automobiles, all possible assistance will be given.

The principal trouble with these roads is that a good road is always an invitation to speed over it. There is pleasure in the speed, but it is secured at the cost of losing sight of much that is worth seeing. In days to come, when Cuba has completed her projected system of highways, the devil wagon will be a common conveyance in the island. Cubans and Spaniards will buy them, and Americans will take their machines there for the pleasure of using them.

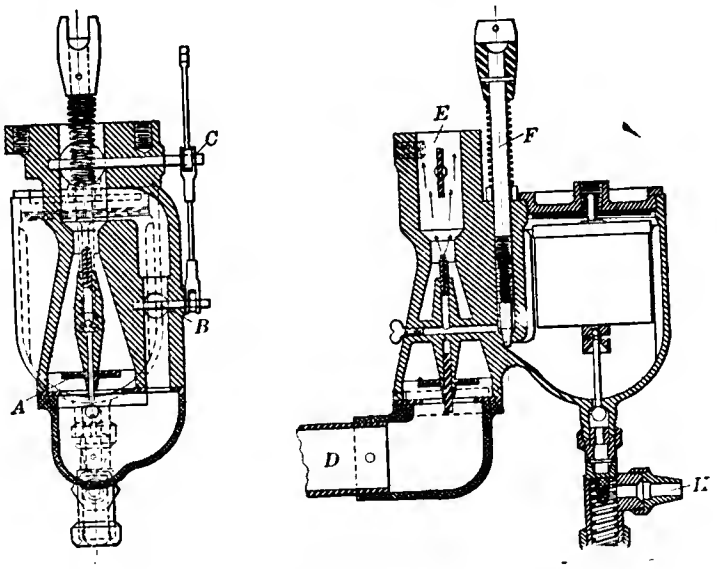
Franklin Carbureter.

The accompanying line engravings show the construction of the automatic float-feed carbureter used on the 1906 Franklin cars, manufactured by the H. H. Franklin Manufacturing Company, of Syracuse, N. Y. Automatic action is secured by an air valve, *A*, normally kept on its seat by a spring and lifted by the suction of the motor; and by an auxiliary air valve, *B*, connected with the throttle lever *C*, so that when the throttle is opened the auxiliary air valve is opened at the same time. The air inlet is at *D* and the motor supply pipe is attached at *E*. The needle valve controlling the supply of gasoline to the spray nozzle is at *F*. Gasoline enters the float chamber through the bottom, the pipe connection being at *H*. The throttle is actuated by the governor on the engine, except in the case of the Franklin runabout, which is not fitted with a governor.

Sprung a New Idea.

F. W. Oliver, of South Bend, Ind., Tuesday night sprung a new one in the line of automobile construction before the local board of trade. The machine consists of an ordinary shaped car, the wheels of which are nearly a foot wide. The propulsion is by a wheel within each wheel, and the promoter says either gasoline or a storage battery can be used. It is designed to run over sandy and rough roads where the ordinary touring car cannot travel.—Pontiac dispatch to Kalamazoo (Mich.) *Gazette.*

The Chicago *Herald* says "the automobile has come to stay," while anybody knows it has come to go.—*Exchange.*



VERTICAL SECTIONS OF CARBURETER USED ON 1906 FRANKLIN CARS.

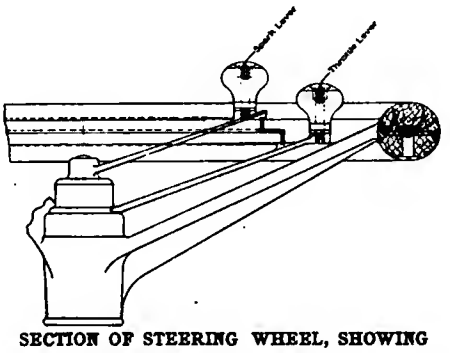
Pope-Toledo Improvements for 1906.

WITH the addition of a new car of 35-40 horsepower, there will be four machines in the Pope-Toledo line for 1906—a 20-25-horsepower, side-entrance car, a 30-35-horsepower car with front entrance through a tilting seat, the new 35-40-horsepower, side-entrance car, and a 40-60-horsepower, side-entrance machine. The Pope Motor Car Co., of Toledo, O., has adhered in the main to constructional methods used with success in the past; but a number of important details have been altered and improved. In general appearance the car is practically unchanged.

In its general arrangement the Pope-Toledo 35-40-horsepower car follows current engineering methods, having four-cylinder, water-jacketed engine, cone clutch, three-speed sliding gear transmission driving direct on the high speed and side chain drive; the frame is of pressed steel. The wheelbase is 104 inches and the tread standard. The engine has individual cylinders with corrugated copper water jackets, and further differs from the majority of large motors of this type in having automatically functioning inlet valves instead of mechanically operated valves. High compression is used and special attention is given to the fitting of pistons and rings. The exhaust valves are made of pure nickel, and the manufacturers state that this has given the utmost satisfaction, being free from warping and unaffected by the heat of the exhaust gases. The engine develops, the manufacturers state, one horsepower for every 8.8 pounds of its weight, and one horsepower for every 54 pounds weight of the complete car.

Flexibility is one of the qualities the motor is said to possess in a large measure. In a recent test of the new car runs were made over a measured distance, there being six persons in the car. After running at the rate of 5 1-4 miles an hour, on the high gear, the engine was accelerated and the car covered a mile at the rate of 62 miles an hour.

The high ratio of horsepower to weight is partly due to the use of special steels, with which experiments have been in progress for some time, and to the free use of aluminum, of which are made the hood, mudguards, crankcase, transmission gearcase, clutch, hub caps, the entire fan, pump and fan pulleys, lubricator and other small parts. In the new car the front axle is of I-beam section, instead of the tubular form previously used; the rear axle is also of I-beam section. The Lemoine steering knuckles have been made stronger, and the ball bearings on which both front and rear wheels run have been fitted with an improved adjusting device which is reliable and easily set. As shown in the line engraving of the rear axle end and parts attached to it there are two internal expanding brakes working in a drum in the driving sprocket; a flange on the drum is drilled to receive the ends of the "pegs" or pillars by which the sprocket is attached to the rear wheel. One brake is operated by pedal and the other by side lever. Both axles are dropped.

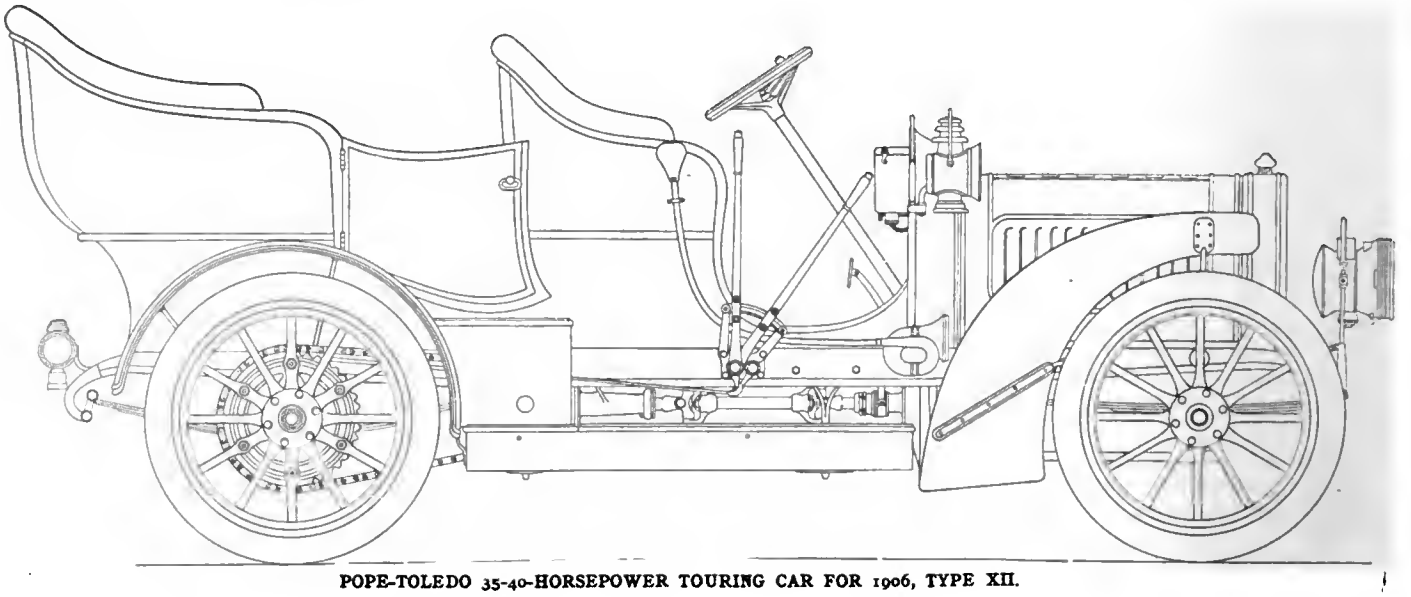


SECTION OF STEERING WHEEL, SHOWING CONTROL LEVERS.

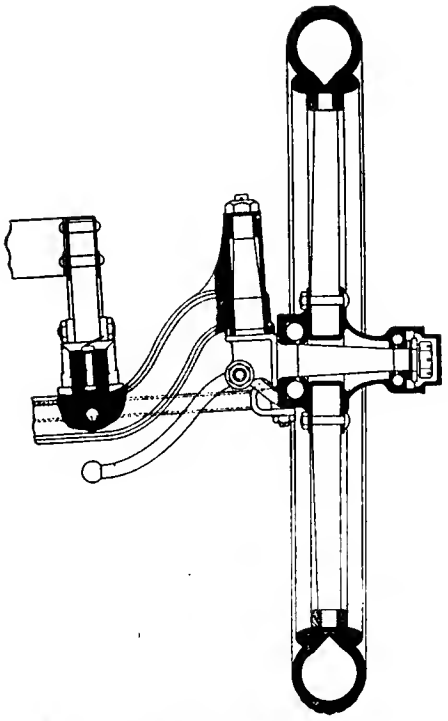
The bearings supporting the inner ends of the divided jackshaft, in the differential gear, have been lengthened, so that a very stiff support is afforded the shaft and the two sections are kept rigidly in alignment. The material of which the jackshaft is made is a special high tensile steel; the gears are of the same material. The tubular support carrying the ball bearing for the driving-shaft has been made longer and stronger to give better support to the shaft; the same is true of the supports for the outboard bearings of the jackshaft, which runs on ball bearings placed close to the sprockets. The squared shaft upon which the shifting gear slides is heavier than last year, and is of steel having a tensile strength of 110,000 to the square inch, the same material being used in the gear.

Heavy reinforcing webs have been formed on the bottom of the gearcase to give great stiffness and insure the correct meshing of the gears, notwithstanding heavy strains on the case. An interlocking device has been added so that the gears cannot be shifted until the clutch has been disengaged; when the clutch is let in a bolt enters a hole in the gear shifting rod, so that until the clutch is withdrawn completely and the bolt is clear of the hole in the rod, the gears cannot be started. This arrangement also keeps the gears in place while running.

Gasoline is fed by gravity to the carbureter from a small tank on the dashboard; this tank holds sufficient gasoline for about 75 miles running. A gauge on the tank shows the height of the fluid. When the level drops, a fresh supply of gasoline is forced by air pressure from the main tank, situated at a lower level, into the small tank. The pressure is supplied by a hand pump, the handle of which rises through the partition between the two front seats, the pump being below. A pressure of ten pounds to the square inch, as registered on a small air gauge on the dashboard, is required to lift the fuel from the lower tank to the upper one. Controlling valves, whose handles project through the front board of the front seat, are used to manipulate the air supply; when the gasoline tank is empty



POPE-TOLEDO 35-40-HORSEPOWER TOURING CAR FOR 1906, TYPE XII.



SECTION OF FRONT WHEEL AND END OF FRONT AXLE.

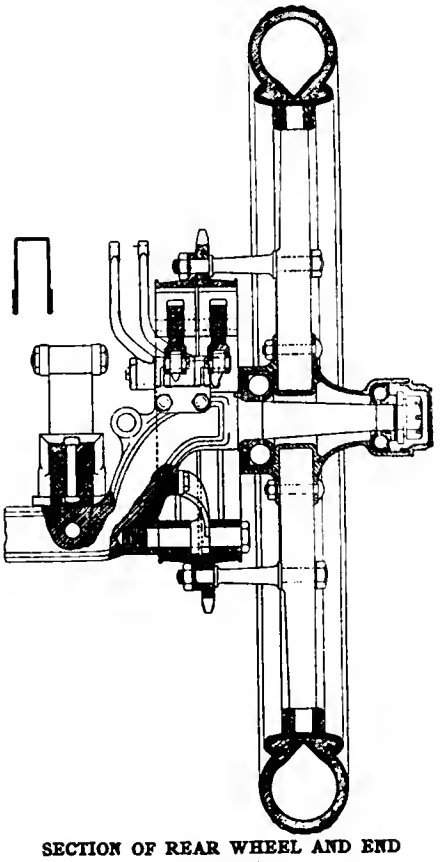
the top valve is opened, placing pressure in the main gasoline tank and forcing the fluid into the auxiliar receptacle; when the lubricator requires filling, or the crankcase requires a charge of oil, the air pressure is turned into the appropriate leads and forces the oil through the proper channels. The pump, air reservoir and valves are clearly shown in the accompanying line engraving.

A new form of button for releasing the brake lever and the change-speed gear lever is fitted; this consists of a short cylinder fitted into a bore in the top of the lever and pressed upward by a spring. When the button is pressed down there is nothing to catch the hand or a finger; with the old-style mushroom-headed button a painful pinch was frequently sustained.

Larger steering wheels having become popular, the wheel on this car has been made 16 inches in diameter instead of 14 inches, as formerly. The rim is now made of Circassian walnut, a beautifully marked wood with a slightly greenish color that gives a handsome finish; the knobs on the throttle and ignition levers, which are on top of the steering wheel, are of the same wood instead of solid brass, as formerly. The spider is of aluminum, a polished aluminum strip showing between the halves of the wood rim, making a handsome wheel.

The manufacturers state that a car of the new model has been in constant use, under test, since the first of July, carrying two persons and 800 pounds dead weight in the shape of sand bags. No weaknesses developed during runs of the most trying kind. With a view to testing the efficiency of the machine a test run of 782.7 miles was made through the sandy roads of northern Indiana, good macadam roads in the central part of the state, where high speeds were obtained, and the mountainous highways in the southern part of the state. During this run the fuel consumed amounted to 49 gallons and 3 quarts, giving an average of 15.8 miles per gallon. During the last 210 miles of the run, from Richmond, Ind., to Toledo, O., 10 gallons of gasoline were used, giving a consumption of 1 gallon for 21 miles running. At the conclusion of the entire 8,000 miles running the motor and transmission were taken apart for examination, and were found to be in as good condition, apparently, as when the car started out.

In outward appearance the car is practically the same as the 1905 Pope-Toledos, whose characteristic outlines are so well known to automobilists. The high, ridged bonnet and radiator are retained, as are the rounded rear fenders, the box running-boards and the familiar curves of the body.



SECTION OF REAR WHEEL AND END OF REAR AXLE.

Glide Models for 1906.

PEORIA, ILL., Nov. 25.—Three models of Glide cars will be made for next season by the Bartholomew Company, of this city, which is making arrangements for the production of 1,000 cars during the season.

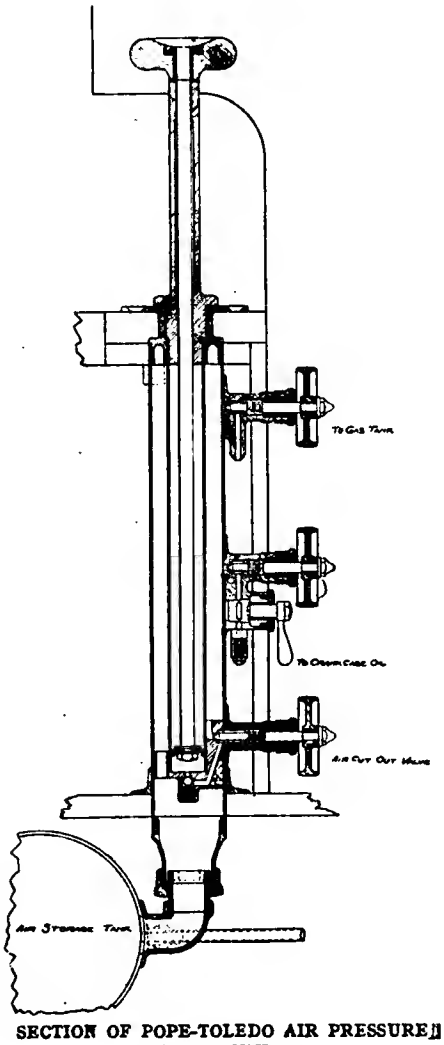
A special study of the transmission problem has been made by the company, which has succeeded in designing and building a type of planetary gear suitable for its heaviest cars, and all three models of the Glide will be fitted with this gear. Any doubt as to its efficiency that may be entertained by a visiting agent or customer is dispelled by sending him out in one of the cars to drive up, down and over some of the many hills over which the city of Peoria is spread. A Chicago sales agent who came down here to investigate the transmission was so thoroughly convinced that before he left he placed his order for forty-five machines. He had come here prejudiced against all types of change speed gear except the sliding gear.

The Glide planetary transmission avoids the use of leather or fiber altogether, having metal-to-metal friction faces in which hard metal rubs against soft metal. All working parts are encased so that they can be flooded with oil, thereby providing a smooth change of speed, especially desirable on hills such as are common here. Every part of this planetary mechanism is made in the Bartholomew factory, and some of the parts are protected by patents. The transmissions will not be sold separately.

Another original feature of the 1906 Glide models is the frame suspension. To prevent side sway, the rear springs are attached to the side frames by trunnions.

The three new models consist of a large touring car, a light touring car and a "Glide-about."

Model E, the large touring car, will be



SECTION OF POPE-TOLEDO AIR PRESSURE HAND PUMP.

driven by a four-cylinder, 4 1-2 by 2-inch engine transmitting through a multiple-disc clutch, planetary change gear giving two speeds forward and reverse, and shaft and bevel gears. It will seat five passengers. The weight complete is 2,200 pounds.

Model C is a light touring car, with 5 by 6-inch single-cylinder engine. It seats four passengers and weighs 1,550 pounds.

Model F Glide-about has a 5 by 6-inch, single-cylinder engine, individual seats for two passengers, and weighs 1,100 pounds.

The Bartholemew company has been engaged in designing a car for the use of canvassers of city wholesale and other houses. It is a car that is intended to be a great help to a man who follows such an avocation.

Of nearly 150 autos owned in Peoria, two-thirds are declared to be Glide cars built by the local manufacturers.

English Daimlers for American Market.

ARRANGEMENTS have been practically completed for the establishment of an American agency for the English Daimler cars, manufactured by the Daimler Motor Company, Ltd., of Coventry, England; the agency will confine its business to importing the English-built machines, not as yet attempting to manufacture. Temporary offices have been established in the Times Building, New York, J. E. Demar, general manager of the new company, states that owing to the great demand for these cars in the home market, there are comparatively few available for export, though the works are operated to their full capacity. Some changes have been made in the car in its English form, and a description of its main features, with illustrations, is appended.

The chassis of the English Daimler car is so constructed that while the standard motor is 28—36-horsepower, a 30—40 motor may be fitted if desired. The smaller engine has a bore of 4.33 inches and a stroke of 5.90 inches, and develops 28-horsepower at 750 revolutions a minute; the larger engine has a bore of 4.88 inches and a stroke of 5.90 inches, and develops 30-horsepower at 650 revolutions a minute. A rather striking feature of the motor is that all the valves, valve gearing and piping—exhaust, inlet and cooling water—are on the left hand side, leaving the opposite side of the engine clear except for the nipples for the cylinder oil feeds and the water jacket drain cocks. The cylinders are cast in pairs with integral water jackets; while the heads of the cylinders are integral with the cylinders. The water jackets are open on top, a cover being fitted over each pair of jackets, with water pipe connections cast on the covers. Below the jackets the cylinder barrels are separate, but are joined at the bottom by the flanges through which the holding-down studs pass.

The valves, all of which are of the same size and mechanically operated, are so placed that their stems are not vertical, but at an acute angle with the cylinders, the lower ends of the stems being farthest from the cylinders. The object of this arrangement is to reduce the surface area of the combustion chamber, and at the same time to make the water jacketing of the valve chambers more effective. The two inlet valves of each pair of cylinders are placed adjacent to one another, between the exhaust valves; each pair of cylinders is served by a single branch of the supply pipe from the carbureter. The usual inspection caps are placed over the valves, and the spark plugs are placed in the caps over the inlet valves.

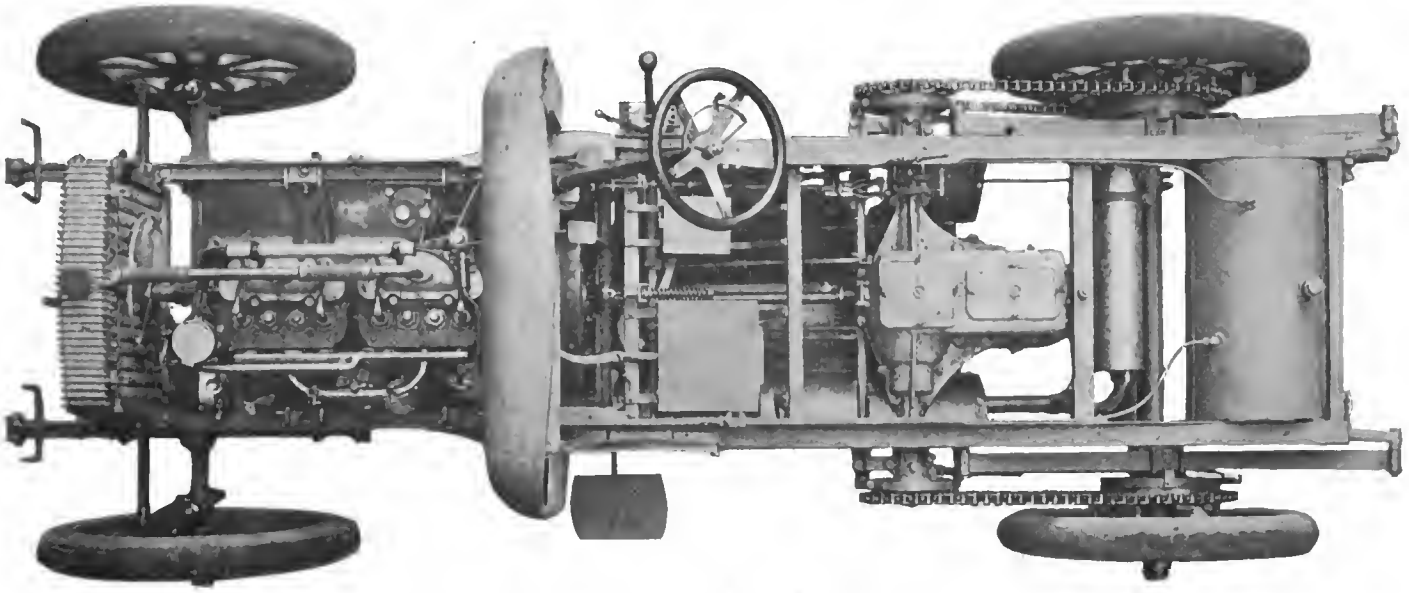
A peculiar feature of the Daimler motor lies in the fact that the valve-operating mechanism—gears, shaft, cams, rollers, push-rods and levers—are all exposed, the housing considered essential by many motor manufacturers being conspicuously absent. Fiber and brass gearing is used; the camshaft is driven from the rear end of the motor, the pinion on the crankshaft being between the flywheel and the crankshaft bearing. Small levers are interposed between the cams and the valve stems, the cams acting on the levers, and the levers, which are fitted with rollers, acting on the valve stems. On the front end of the camshaft is a bevel gear by which the vertical timer shaft is driven; the gears are enclosed in an oil-tight casing which is continued upward, in the form of a sleeve through which the vertical spindle passes, until it meets the casing which forms the outer part of the timer. The sleeve and the outer part of the timer are rotatable through an arc sufficient to give the necessary range of ignition timing; the throttle, just above the carbureter on the left side of the motor, is connected by a rod with an arm on the timer spindle sleeve, so that throttle and ignition are regulated together by a single lever working over a stationary notched quadrant on the top of the steering wheel. The engine is without a governor.

High-tension ignition is used, a single vibrator coil serving all cylinders through the distributer referred to; ordinarily batteries supply the current, though a high-tension magneto can be furnished, with or without the batteries. A special type of generator is also manufactured for this car, and can be used not only for keeping storage bateries charged, but also for electric lights. Both armature and field magnets revolve; when the speed of the armature becomes too high the fields are caused to rotate in the same direction, thus maintaining a constant relative speed.

A horizontally divided aluminum casting forms the crankcase of the engine, the bearings—one at each end and one intermediate bearing—being attached to the upper half, so that the removal of the lower half of the case has no disturbing influence on any of the fastenings or adjustments. White metal bearing surfaces are used in the crankshaft and crankpin bearings; the piston pin as well as the "little end" bearing in the steel connecting-rod are of hardened steel. Pistons are very long and have four rings each; there are only two grooves, two rings being placed in each groove, all at the top of the piston. The rings have lapped joints, the laps being extremely long and very carefully fitted.

ENGLISH DAIMLER 30-40-HORSEPOWER PHAETON FOR 1906, WITH CAPE CART HOOD.

A gear pump, chain-driven, circulates the cooling water; the water passes from the top of the jackets to the top of the radiator, and out of the bottom of the radiator into the jackets on the left hand side very near the top. The radiator is of peculiar construction, having a ribbed aluminum tank at the top and a brass tank at the bottom, with gilled copper tubes, standing vertically, opening through from one tank to the other. One of the advan-



PLAN OF CHASSIS OF ENGLISH DAIMLER 28-36-HORSEPOWER CAR.

tages of this type of radiator is that a leaky tube can be removed and plugged, thus avoiding the continual loss of water without perceptibly interfering with the efficiency of the cooler. Severe tests by slow running in dense street traffic have shown the radiator to be exceedingly efficient in keeping the water cool. A fan placed behind the radiator is belt-driven from the crankshaft, the fan bearings being attached by brackets to the front of the engine.

The starting crank turns the crankshaft through a chain and pair of sprockets, the sprocket on the crankshaft being mounted on a ratchet so that the chain and wheels are at rest at all times except when the crank is being turned. The upper sprocket is directly over the end of the crankshaft and is carried in a bracket cast for the purpose on the upper half of the crankcase. The outer end of the starting handle shaft is supported in a bearing carried by a special crossbar in front of the radiator; the shaft passes though the radiator near the bottom.

The carbureter, on the left hand side of the engine, is supplied with gasoline from a large cylindrical tank hung on the rear end of the frame; the pressure of the exhaust gases is used to raise the fuel to the height required. A small pipe leads a portion of the gases to the tank from the exhaust pipe of the two rear cylinders. The carbureter has the usual float; just above the spray nozzle is fitted an inspection plug, so that the nozzle can easily be examined by unscrewing the plug. The regular air supply is warmed by one of the exhaust pipes; the auxiliary air supply is taken in cold. A specially constructed valve controls at the same time the passage of the mixture to the cylinders and the passages through which the cold and the warm air enter, in this way maintaining a mixture of uniform quality. The valve is of the compound piston type, and, as has already been said, is connected with the ignition timer, so that both work together under the control of the lever on the steering wheel. A small cock is fitted to each branch of the supply pipe leading to the engine, between

REAR END OF DAIMLER CHASSIS, SHOWING CHAIN DRIVE.

FRONT OF DAIMLER 28-36-HORSEPOWER CHASSIS, SHOWING RADIATOR.

the carbureter and the cylinders, and final adjustment of the quantity of air required is made by opening or closing these cocks. The adjustment, once made, is practically permanent, and no provision is made for altering it while the car is in motion. The exhaust gases from the engine are led first into an expansion chamber alongside the engine and then to two mufflers, one after the other.

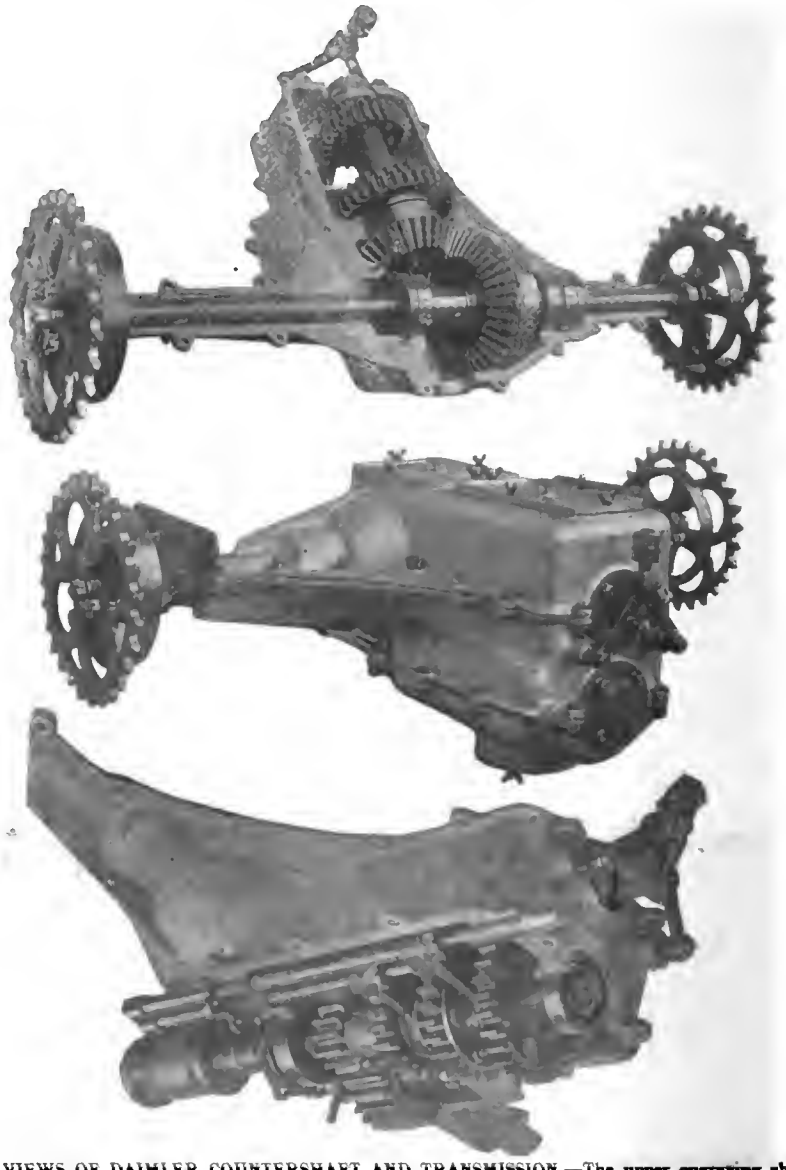
Following the transmission of power from the engine to the rear wheels, next in order comes the clutch. This is a leather-faced cone with an aluminum body; springs under the leather give smooth and gradual engagement. The clutch fork has a double ball-bearing thrust.

The casing enclosing the transmission and differential gearing is placed far to the rear, and, contrary to usual practice, the jackshaft is at the front end of the casing; the result is that the jointed clutch shaft is unusually long. The gear casing extends, in tubular form, clear to the sprockets on the ends of the jackshaft, the ends of the tubes carrying the ball bearings that support the outer ends of the shaft. The casing is supported at three points only—the outer ends of the jackshaft casing and the rear end of the gearcase. The primary shaft, to which the clutch shaft is coupled, enters the gearcase below the jackshaft; the primary shaft is squared inside the case and carries the sliding pinions. Directly above lies the secondary shaft carrying the fixed gears and the bevel gear through which the jackshaft is driven; both shafts revolve in ball bearings. The change-speed gearing is of the selective type, there being two pairs of sliding pinions on the squared shaft, one pair giving first and second, and the other third and fourth speeds. One lever controls the forward speeds, while the reverse, engaged by throwing a wide-faced intermediate pinion into mesh with the low-speed gears, is operated by a separate lever. Each of the sliding pairs has its individual collar, fork and shifting rod, so connected that when the hand lever is swung to the left and moved forward, the lowest speed is engaged; moved to the opposite end of the same slot, the second speed is thrown in. To get to third speed, the lever is brought to the neutral positon at the center, when it can pass through an opening between the slots. On entering the outer or right hand slot, the lever engages with the connections of the sliding pinions giving third and fourth speeds; third speed is engaged when the lever is pushed forward, and the fourth or highest speed when the lever is pulled backward to the limit of its movement. Drive is always through one pair of gears, except in reversing, when an extra gear is employed. The reversing lever is placed beside the forward speed lever; the latter has a large ball handle.

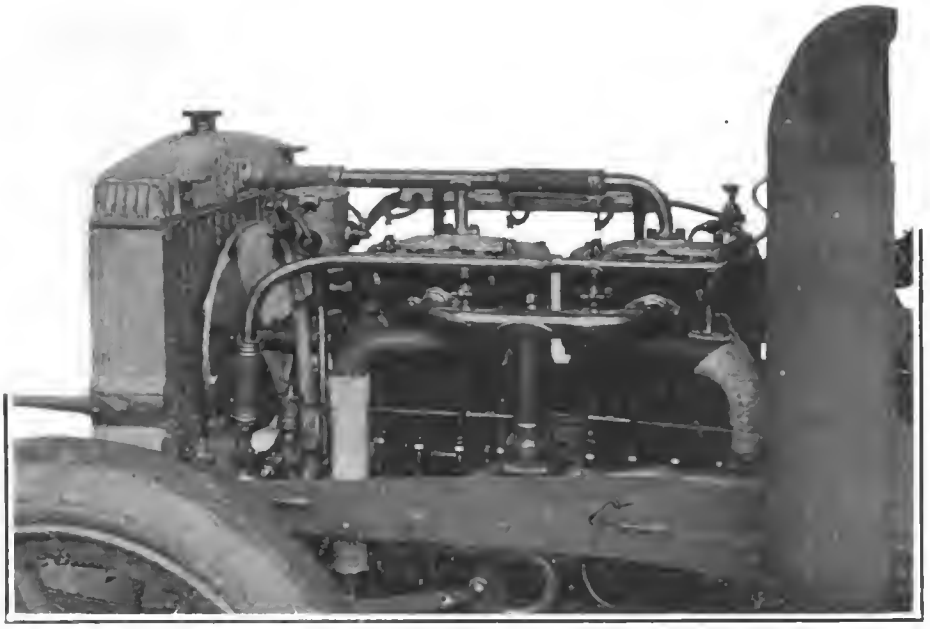
Two large hand-holes, with suitable covers, are placed in the top of the casing, and the entire bottom of the casing is also removable, as is shown in the lowest of the three illustrations showing the gearcase and sprockets. The entire gearing runs in oil. Brake drums are fitted to the outer ends of the jackshaft, the constricting bands being under the control of a pedal. The differential is driven direct by the large bevel gear. The main frame of the car is of wood with longitudinally ribbed steel flitch plates set vertically. A peculiar feature of the frame is that the steel plates are inside the frame from the dashboard back; but forward of the dashboard steel angles are riveted inside the frame to support the engine. The effect of this arrangement is to give a frame that is narrowed in front without any bending. The springs are semi-elliptic and very long. Both axles are straight; the rear axle is of bar steel, while the front axle is of I-beam section. The steering knuckles are particularly neat and substantial in design. The ends of the axle proper carry the pivots, while the yokes are forged integral with the stubs upon which the road wheels are mounted. The wheels are all 35 inches in diameter, have 5-inch tires and run on ball bearings. The steering gear is of the worm and sector type, enclosed in a dust-proof casing, and is, of course, irreversible. The connecting rod between the steering knuckles is placed in front of the axle; the joints are of the ball-and-socket-type, with spring buffers.

Emergency brakes, consisting of bands and drums and operated by the usual hand lever, are placed on the rear hubs. An unusual place for the coil-box is under the floor of the car on the right hand side, immediately under the driver's feet; on the opposite side, also under the floor, is the battery box. The gasoline tank, at the rear, holds 14 gallons. Beside the engine is the lubricating oil tank, from which oil is forced to the lubricator on the dashboard by exhaust pressure; the lubricator supplies oil to the cylinders and the crankcase, and has a cam-plate arrangement by which all the feeds can be closed at the same time.

The body is of the popular side-entrance touring type, with plenty of room for the



THREE VIEWS OF DAIMLER COUNTERSHAFT AND TRANSMISSION.—The upper engraving shows intermediate portion, carrying upper gear shaft; central view shows gear box complete with covers, and bottom engraving shows lower gear shaft with base casting of box removed.



ENGINE OF 28-36-HORSEPOWER DAIMLER, SHOWING INLET AND EXHAUST PIPES.

passengers. The front seats are divided, and the chauffeur's seat is placed lower than the other front seat. The dashboard is concave, and the bonnet almost square. Though straight lines predominate in the body design, the arrangement is such that there is no appearance of stiffness or awkwardness; on the contrary, the car is attractive in appearance, and is, at the same time, comfortable to ride in.

M. Brasier's New Designs for 1906.

PARIS, Nov. 17.—The work of a designer of international race winners like M. Brasier is always followed with interest by the trade, and the announcement of the changes in the 1906 models is therefore of more than ordinary interest. There will be only three sizes of Richard Brasier cars marketed, one of 15 horsepower, one of 25 horsepower and one of 50 horsepower, for regular trade.

In the motor design M. Brasier has adopted the offset cylinders, a feature of gas-engine construction in which Mr. Duryea in America was a pioneer, though in steam-engine practice the idea goes back to the middle eighties, when the Westinghouse shops adopted this form of construction for high-speed, single-acting, steam engines, with excellent results. In order to further reduce the frictional losses against the cylinder wall, M. Brasier also determined to materially increase the lengths of his connecting rods. As there is a smaller angle of thrust for a given stroke, there is also a reduced lateral pressure against the cylinder, and a consequent gain in efficiency, friction being reduced, and the general balancing of the engine much improved.

Pistons Made Very Long.

The pistons are made very long and light to increase the frictional area, and consequently decrease the wear without impairing the smoothness of running of the engine. This has a further advantage. The piston-pin bearing works at a greater distance from the top of the piston and is consequently less affected by the intense heat of combustion, while a longer piston means less oil passing up its walls and above it to soot the compression chamber and sparking mechanism and to cause smoke and odor.

Exhaust and inlet valves are alike, and consequently interchangeable. They are mechanically operated, and instead of being located on opposite sides of the cylinders are all on the same side, as is usual in Renault practice. This has the advantage of permitting the use of a single camshaft and is said to have the effect of giving a more "compact" charge of gas; that is, it is not so spread out as when opposite valves are used, and ignition is more rapid, giving a faster running engine, and one in which great variations of speed are possible. At least this much is said in support of the change.

Water-Cooled Exhaust Pipe.

The gases coming from all four exhaust valves are led into a single longitudinal casting which is water jacketed, this leading in turn to the muffler. The object of this construction is to reduce the tendency of the exhaust valves to overheat, to increase the silence of the running of the engine, to reduce the back pressure at the muffler, by contracting the charge, and also to keep a cleaner and cooler under bonnet, this last advantage being distinctly felt when the engine has to be tinkered with occasionally, especially by one who on occasion has left sundry bits of skin on a tangle of red-hot exhaust pipes.

The camshafts are made stouter in diameter than they previously were, and are cut from the bar with the cams formed inte-

The 15-horsepower axle is stronger than last year. The small level-driving pinion is carried on ball bearings and has ball-thrust bearings. The axle tubes proper are carried at their outer end by two ball bearings fitted inside the wheel hub, so that they carry the load, the internal shafts simply having to transmit the driving effort.

The frame is of pressed steel stiffened by a tubular subframe, as has always been the Brasier practice. The front axle has not been changed, except for general strengthening.

Both Systems of Water Cooling.

The cooling is by natural circulation for the 15- and 25-horsepower sizes, while an unusually powerful pump is used on the larger car. The radiators are of the gilled tube type, as in 1905, but are larger; the tank surrounds the entire radiator. A belt-driven fan assists the air draught through the radiator in the two smaller models. In the 50 horsepower, the large pump and the large radiator, which is the same as that on the racers, make a fan unnecessary.

The brake drums are larger than before and are now made of forged steel instead of castings, as heretofore, this reducing the tendency to seize and also the wear.

Before closing this article it should be stated that, contrary to rumors, the Richard Brasier concern will produce racing cars for the 1906 season. These racers will probably be propeller shaft driven, as there is not the heavy load that is carried on touring cars on these machines. M. Brasier is conducting exhaustive tests which may be made public later, in order to settle whether he will use a shaft or side chains.

Stevens-Duryea Limousine.

The Stevens-Duryea four-cylinder touring car for 1906 is identical in design and construction with the 1905 machine, no changes having been made either in the mechanical features or in the body. A limousine body, however, has been designed and placed on the regular touring car chassis, and the combination, which is illustrated by the accompanying engraving, is called Model R. The interior is fitted with the many little conveniences that go to make up the well-appointed closed car, and on the roof is a baggage railing. A description of the mechanical features of the car was given in The Automobile of May 18 last; a brief recapitulation will serve to refresh the reader's memory with regard to the main points of interest.

The three-point suspension system is used in attaching the engine and the transmission gearcase to the frames of the car. The crankcase and gearcase are not separate, however, but are rigidly connected by a tubular casting containing the multiple disc clutch. Thus the engine and transmission gear, with the clutch between them, are a

unit, and the whole system is suspended from three points, two being the arms cast on the front of the engine crankcase and the third on the rear end of the transmission gearcase, which is bolted to a cross frame. Drive is by propeller shaft and bevel gears. The tubular connection between the crankcase and gear case makes it necessary to place the flywheel in front of the engine, contrary to the usual practice of builders of vertical motors.

The motor has separately cast cylinders, water cooled, a gear-driven centrifugal pump maintaining the circulation and the customary radiator and fan taking care of the cooling of the water. The valves are all mechanically actuated, are all exactly alike and interchangeable, and are all placed on the same side of the engine—the left.

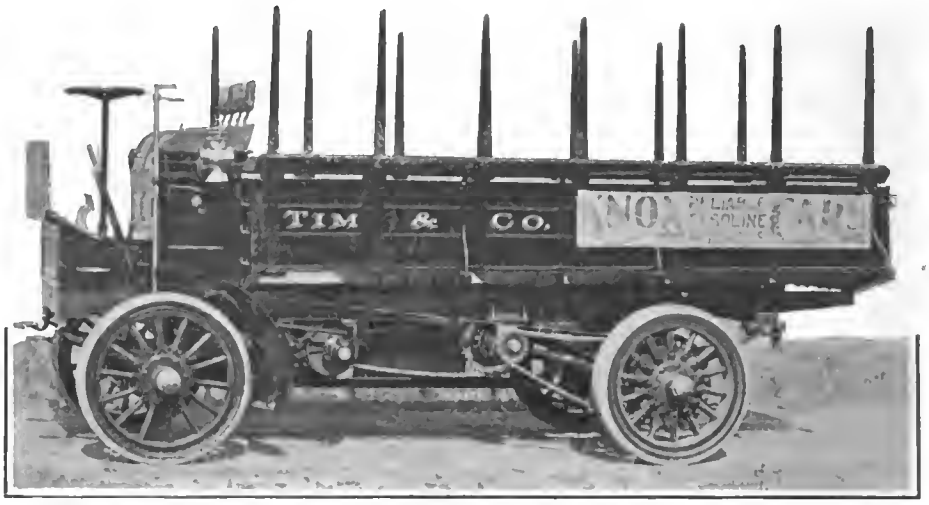
Ignition is by jump spark, dry batteries furnishing the current; a quadruple coil is placed on the dashboard. Lubrication is effected through sight feeds on the dash; the handle for turning on the oil is also the switch handle, so that the car cannot be started without turning on the oil.

The multiple disc clutch has alternate plates of plain steel and leather-faced steel; it is used without lubrication, and is extremely smooth and easy in starting the car, while holding solidly when fully engaged.

The car has pressed steel side and cross frames of heavy stock, strongly braced; the side frames are not offset. The wheels, 30 inches in diameter, have 3 1-2-inch tires and run on roller bearings. Expanding hub brakes operated by a side lever are placed on the rear wheels and are completely enclosed; the regular service brake is a constricting band operated by a pedal. Front axle is tubular; springs are all semi-elliptic, long, and easy in action.

The transmission gear is of the sliding type, giving three speeds forward and a reverse, with direct drive on the highest speed. A single side lever controls all the speeds. Gears are of hardened steel and are lubricated by oil carried in the gearcase; pockets are formed in the casing to contain the oil used to lubricate the transmission shaft bearings.

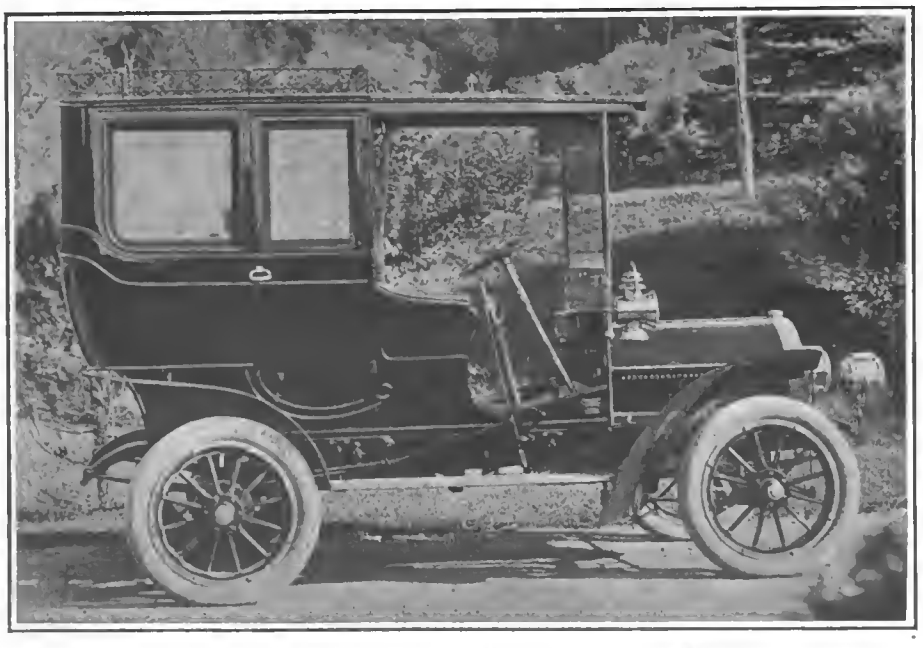
The side-entrance body of the touring-car is made of hammered aluminum plates, unannealed and stiff; five passengers can be carried in the comfortably upholstered seats. Wheelbase is 90 inches and tread 54 inches. There is ample clearance under the car, the lowest part being 14 inches above the road surface. The car weighs less than 1,700 pounds.



KNOX THREE-TON TRUCK, DRIVEN BY 16-20-HORSEPOWER OPPOSED AIR-COOLED ENGINE.

Knox 3-Ton Truck.

The gasoline truck illustrated herewith is one of the new three-ton machines manufactured by the Knox Automobile Co., of Springfield, Mass.; this particular machine was recently delivered to Tim & Co., manufacturers of collars and cuffs, Troy, N. Y. The truck has a maximum rated carrying capacity of 6,000 pounds and weighs, empty, 4,800 pounds; the chassis alone weighs 3,500 pounds. The over-all length is about 15 feet 6 inches, and the load-carrying part of the body, back of the seat, is 12 feet long; over-all width, 7 feet; inside width of the body, 5 feet 6 inches. Double opposed air-cooled cylinders of 5-inch bore and 7-inch stroke are used in the motor, which is rated at 16-20 horsepower and drives the truck at a maximum speed of ten miles an hour. Planetary transmission gearing gives two forward speeds and one reverse; drive is by side chains, the solid rear axle of 2 1-2-inch square section being of the "dead" type. Steel of I-beam section is used for the front axle. The wheelbase is 111 inches and the tread 60 inches; wheels are 36 inches in diameter and are shod with solid rubber tires. Emergency brakes act on the rear hubs. Omnibus, sight-seeing or other bodies may be mounted on the same chassis if desired, and by altering the gearing the machine may be given a maximum speed of fifteen miles an hour if the weight is proportionately reduced.



STEVENS-DURYEA MODEL R 20-HORSEPOWER CAR, WITH LIMOUSINE BODY.

The importation of automobiles by Portugal shows a growth during four years from a value of $37,915 in 1901 to $229,265 in 1904. During the first five months of the present year the imports amounted to a value of $81,125. Most of the automobiles sent to Portugal were built in France, 80 of the 118 imported in 1903 being of French manufacture. The United States ranked second with thirteen, Italy third with ten and Germany fourth with three. Since that year the record of origin has not been given. The duty imposed by Portugal on finished autos is $120, and on chassis $70. Three principal concerns are engaged in the automobile business in Lisbon as follows: A. Beauvalet & Commandita, 31 Praça dos Restauradores; Socicdade Portugueza, 4-26 Rua do Jardim do Regedor; F. Street & Co., 156 Rua do Poço dos Negros.

The three leading dealers in Oporto are: Teixeira & Irmao, Rua da Sa da Bandeira; Empreza Automobilista do Porto, Rua de S. Lazaro; Joao Garrido, Rua de Passos Manoel.

Garden Show to Have 220 Exhibitors.

ALL available space in Madison Square Garden has been alloted to 220 exhibitors for the Sixth Annual New York Show, to be held from January 13 to 20, 1906. More than a score of applicants are still unprovided with display space.

There will be thirty-two exhibitors of pleasure vehicles on the main floor and ten more in the exhibition hall on the Madison avenue end of the building.

Nine builders of commercial vehicles will have displays in the basement, constituting one of the largest exhibitions of industrial automobiles ever seen in this country.

The tire and accessories exhibitors will have booths in the balconies, elevated platforms and in the concert hall, as in last year's show.

Owing to the fact that the aisles will be wider and some of the spaces larger than formerly, there will be about thirty fewer exhibitors than last January, making it easier for visitors to circulate more freely and comfortably.

Great plans are being made for the harmonious and impressive decoration of the great hall, which will be announced later.

Following is the complete list of exhibitors who have been allotted space by George Pope, chairman; M. I. Brock, C. R. Mabley and M. L. Downs, of the show committee of the Association of Licensed Automobile Manufacturers:

Henry A. Allers & Co., American Ball-Bearing Co., American Darracq Automobile Co., American Electric Novelty & Mfg. Co., American & British Mfg. Co., Anderson Spark-Plug Co., Apperson Bros. Automobile Co., Atwater Kent Manufacturing Works, Atwood Manufacturing Co., Aurora Automatic Machinery Co., Auto Brass & Aluminum Co., Auto Import Co., Auto Supply Co., The Autocar Co., The Autocoil Co., THE AUTOMOBILE, Automobile Top & Cover Mfg. Co., Inc.

Badger Brass Manufacturing Co., Baldwin Chain & Manufacturing Co., Barnes Gear Co., Belden Automobile Transmission Co., E. M. Benford, Bethlehem Steel Co., C. Billy, S. & M., Inc., Sidney B. Bowman Automobile Co., S. F. Bowser & Co., Brennan Manufacturing Co., Briscoe Manufacturing Co., Brown-Lipe Gear Co., Buffalo Electric Carriage Co., Buick Motor Co., Byrne, Kingston & Co.

Cadillac Motor Car Co., Cantano Electric Traction Co., Carpenter Steel Co., Albert Champion Co., The Chandler Co., Chicago Battery Co., Columbia Lubricants Co. of New York, Columbus Buggy Co., Consolidated Mfg. Co., Continental Caoutchouc Co., Continental Rubber Works, Cooper Hewitt Electric Co., Wm. Cramp & Sons Ship & Engine Building Co.

Dac Automobile Supply House, Dayton Electrical Manufacturing Co., Decauville Automobile Co., De Dietrich Importing Co., Diamond Chain Mfg. Co., Diamond Rubber Co., R. E. Dietz Co., Wm. J. Duane & Co., Duff Manufacturing Co.

Eastern Carbon Works, Edmunds & Jones Mfg. Co., Electric Vehicle Co., Elmore Manufacturing Co., English & Merseck Co.

Horace E. Fine, Firestone Tire & Rubber Co., Fisk Rubber Co., H. H. Franklin Manufacturing Co., A. H. Funke.

Gabriel Horn Mfg. Co., Gallia Electric Carriage Co., Gas Engine & Whistle Co., Gilbert Mfg. Co., B. F. Goodrich Co., Goodyear Tire & Rubber Co., Gray & Davis, G & J Tire Co.

C. T. Ham Mfg. Co., R. E. Hardy Co., A. W. Harris Oil Co., Hartford Rubber Works Co., Hartford Suspension Co., Hatch & Brittin, Inc., Haynes Automobile Co., Heinz Electric Co., Herz & Co., Hess-Bright Manufacturing Co., Hewitt Motor Co., Hollander & Tangeman, Holly Bros. Co., Henry Hooker & Co., *Horseless Age*. Hyatt Roller Bearing Co., Hydraulic Oil Storage & Distributing Co.

Imperial Brass Manufacturing Co., International A. & V. Tire Co., Iron Clad Mfg. Co.

Phineas Jones & Co., Jones Speedometer, Judson & Downing Co.

Knox Automobile Co.

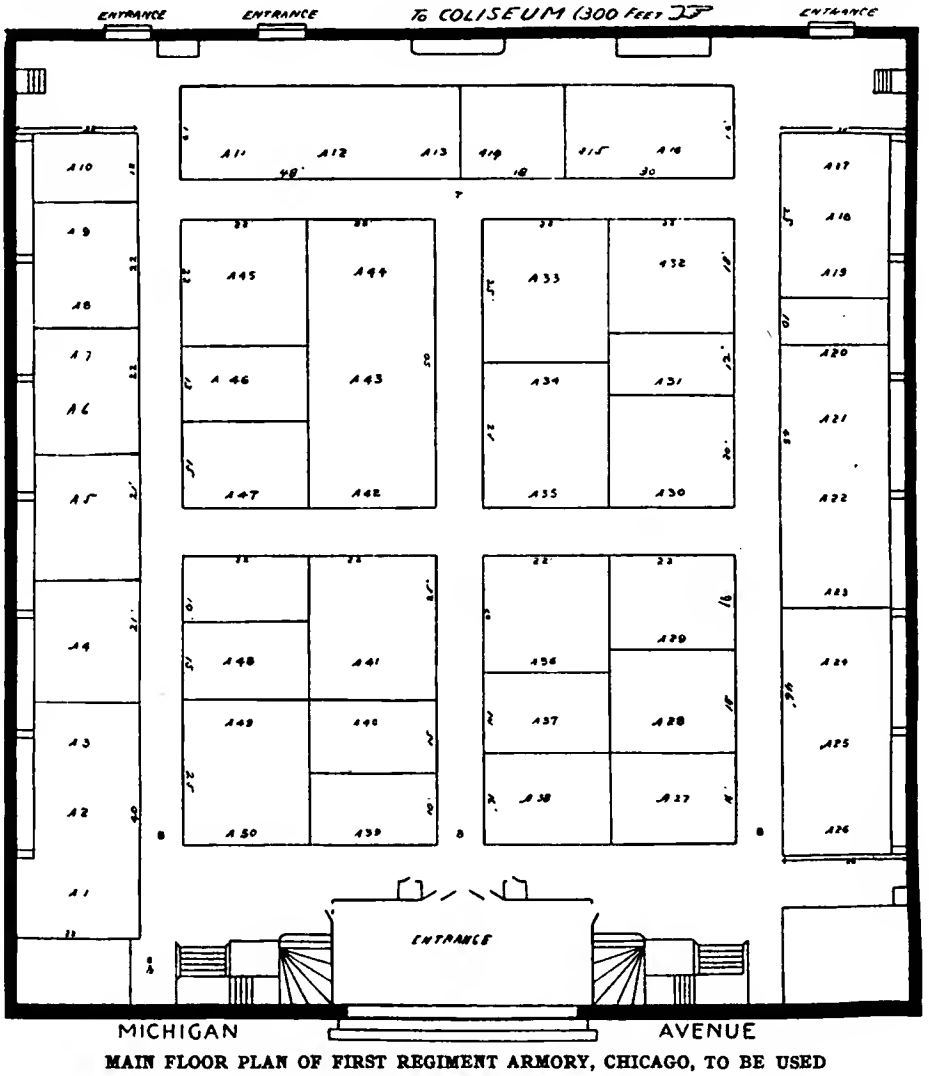
Lackawanna Leather Co., Light Manufacturing & Foundry Co., Locomobile Company of America, The Lunkenheimer Co.

McCord & Co., McGiehan Manufacturing Co., Manhattan Storage Co., Manufacturers' Foundry Co., Matheson Motor Car Co., H. & F. Mesinger Co., Meyrowitz Manufacturing Co., Michelin Tire American Agency, Inc., Michigan Steel Boat Co., Midgley Manufacturing Co., Midvale Steel Co., Charles E. Miller, Morgan & Wright, A. R. Mosler & Co., *Motor*, *Motor Age*, Motor Car Equipment Co., Motor Car Specialty Co., *Motor Way*, Motor World Publishing Co., Motsinger Device Manufacturing Co., L. J. Mutty Co.

National Battery Co., National Carbon Co., National Sales Corporation, New York Carriage Top Co., New York Sporting Goods Co., New York & New Jersey Lubricants Co., Noera Manufacturing Co., Northern Manufacturing Co.

F. W. Ofeldt & Sons, Olds Motor Works, Oliver Manufacturing Co.

Panhard Motor Car Co., The Pantasote Co., Parish & Bingham Co., Patterson, Gottfried & Hunter, Ltd., Peerless Motor



MAIN FLOOR PLAN OF FIRST REGIMENT ARMORY, CHICAGO, TO BE USED AS AN ANNEX TO THE COLISEUM SHOW.

Car Co., Pennsylvania Rubber Co., George N. Pierce Co., Pittsfield Spark Coil Co., Pope Manufacturing Co., Pope Motor Car Co., Post & Lester Co., Prest-O-Lite Co., Thomas Prosser & Son.

Railway Appliances Co., Remy Electric Co., Republic Rubber Co., Republic Rubber Tire & Shoe Co., Rose Manufacturing Co., Roth Jack & Tool Co., Royal Motor Car Co., Leon Rubay, Rushmore Dynamo Works.

Samson Leather Tire Co., Schwarz Wheel Co., Semi-Dry Battery Co., Shelby Steel Tube Co., Sibley & Pitman, Edward Smith & Co., Smith & Mabley, Inc., Smith & Mabley Manufacturing Co., M. Soffan (Hercules Tire), Spicer Universal Joint Manufacturing Co., C. F. Splitdorf, Sprague Umbrella Co., Springfield Auto Top & Upholstering Co., Springfield Metal Body Co., Standard Roller Bearing Co., Standard Welding Co., F. B. Stearns Co., Steel Ball Co., J. Stevens Arms & Tool Co., Studebaker Automobile Co., Swinehart Clincher Tire & Rubber Co.

E. R. Thomas Motor Co., Timken Roller Bearing Axle Co., Trade Advertising & Publishing Co., Twentieth Century Manufacturing Co.

The Utility Co.

Vacuum Oil Co., Valentine & Co., Veeder Manufacturing Co., Vehicle Equipment Co., The Ventilated Cushion Co.

Walter Automobile Co., Waltham Manufacturing Co., Warner Gear Co., Warner Instrument Co., Way Muffler Co., The Webb Co., Weed Chain Tire Grip Co., F. H. Wheeler, Wheeler Manufacturing Co., Whitlock Coil Pipe Co., The Whitney Manufacturing Co., E. J. Willis Co., Winton Motor Carriage Co., Witherbee Igniter Co., Wray Pump & Register Co.

Chicago Show Will Fill Coliseum and Armory.

CHICAGO, Nov. 25.—As foretold in these columns in the issue of November 16, it has become necessary to secure the First Regiment Armory, on Michigan avenue and Sixteenth street, as an annex to the Coliseum show to be held February 3 to 10 next. Allotments of spaces in both buildings were made this week and diagrams and notification of the allotments were mailed to applicants for space. Even with the addition of the armory, with its 20,000 square feet of floor space, there are an even dozen concerns on the waiting list. Had the armory not been secured, it would not only have been necessary to leave out a score of exhibitors who are now accommodated, but the others would have had such small spaces and some been forced into such poor locations that it would have been impossible to show more than half of their models.

The allotment of spaces was made, as provided by the rules, in this way: The applications of members of the National Association of Automobile Manufacturers, Inc., were selected and divided into five classes according to the number of previous shows at which the applicants had exhibited. The remaining applicants were similarly treated. A drawing was held in each class, with the result that the allotments were made in the order shown by the accompanying list. An effort was made to provide each applicant, as nearly as possible, with the amount of space for which he applied.

The First Regiment Armory is, in many respects, superior to the Coliseum, which is but 300 feet away, and which is connected with the armory by an asphalted alley. This alley will be thoroughly cleaned, lighted and decorated, and an effort will be made to cover it. The appointments at the armory will be the same in every detail as those at the Coliseum. A duplicate set of tickets will be issued so that the public will be admitted to both buildings for one admission fee.

Agents' passes, good for both buildings, will be issued at the armory only, railroad tickets will be signed there, and all conventions which are to be held during the week will be held in that building. Demonstrating cars will line up on Michigan avenue, so that in this respect armory exhibitors will have a distinct advantage over those at the Coliseum.

Following is the list of exhibitors of complete vehicles in the order of allotment in both the Coliseum and the First Regiment Armory:

EXHIBITORS OF COMPLETE VEHICLES IN THE COLISEUM.

MEMBERS OF THE N. A. A. M.

Packard Motor Car Co., Elmore Mfg. Co., E. R. Thomas Motor Co., Olds Motor Works, Hayne; Automobile Co., Locomobile Co. of America, National Motor Vehicle Co., Electric Vehicle Co., Pope Motor Car Co., Pope Mfg. Co., Woods Motor Vehicle Co., Winton Motor Carriage Co., Mitchell Motor Co., T. B. Jeffery & Co., Peerless Motor Car Co., Knox Automobile Co., F. B. Stearns Co., Studebaker Automobile Co., J. Stevens Arms & Tool Co., Autocar Co., George N. Pierce Co., White Sewing Machine Co., St. Louis Motor Carriage Co., Apperson Bros. Automobile Co., Royal Motor Car Co., H. H. Franklin Mfg. Co., Northern Mfg. Co., Cadillac Automobile Co., Ford Motor Co., Premier Motor Mfg. Co., Reliance Motor Car Co., Baker Motor Vehicle Co., Wayne Automobile Co., Duryea Power Co., Buick Motor Co., Waltham Mfg. Co., Corbin Motor Vehicle Corporation, Vehicle Equipment Co.

NON-MEMBERS OF N. A. A. M.

Chicago Automobile Co., Bartholomew Co., Tincher Motor Car Co., Auburn Automobile Co., Jackson Automobile Co., Austin Automobile Co., Pungs-Finch Auto. & Gas Engine Co., Dayton Motor Vehicle Co., Model Gas Engine Co., Pierce Engine Co., Holsman Automobile Co.

EXHIBITORS OF COMPLETE VEHICLES IN THE ARMORY.

NON-MEMBERS OF N. A. A. M.

Welch Motor Car Co., Monarch Automobile Co., Lozier Motor Co., Acme Motor Co., Adams Co., Blomstrom Motor Works, Wolverine Automobile Co., Reo Motor Car Co., Maxwell-Briscoe Co., Buffalo Electric Carriage Co., Marion Motor Car Co., Rapid Motor Vehicle Co., Moline Automobile Co., Dolson & Sons Co., C. P. Kimball & Co., Cleveland Automobile Co., Oscar Lear Automobile Co., Synnestvedt Machine Co., Wayne Works, Rainier Bros., Western Automobile Co., Berkshire Automobile Co., Logan Construction Co., Detroit Automobile Co., Kansas City Automobile Co., J. W. Moon Buggy Co., Buckeye Automobile Co., Knight & Kilbourne, McCrea Truck Co.

IMPORTERS AND DEALERS.

Smith & Mabley, Inc., Panhard & Levassor (Ralph Temple), H. S. Michaels Co., Automobile Importing Co.

CLEVELAND SHOW SITUATION

Interesting Deadlock Over Option on Only Large Exhibition Hall.

CLEVELAND, Nov. 27.—An interesting situation has arisen in connection with the plans for a local auto show here this winter. It comes about in this way:

The show last winter was conducted by the Cleveland Automobile Dealers' Association under the auspices of the Cleveland Automobile Club. Invitations to exhibit were sent to all dealers in the city, it is claimed, whether they were members of the C. A. D. Association or not, but one of the large dealers—T. C. Whitcomb, who handles unlicensed cars exclusively—claims that he did not receive an invitation. Instead of having a booth in the show, he rented a large hall near the Cleveland Grays' Armory, where the show was held, and arranged an exhibition of his own.

Mr. Whitcomb early decided to look out for himself this coming winter and to enlist the co-operation of all the other local dealers who were not in the association, so he obtained an option on the large Central Armory "for the same week that the Cleveland Automobile Dealers' Association is to hold its show." The matter was kept a secret, however.

A few weeks ago the association dealers found that the Grays' Armory would not be available for their show this year, and they applied to the parties in charge of Central Armory for the use of that place for the week of February 18. Meantime there had been a change of management of Central Armory, and, knowing nothing of Whitcomb's option, the new parties readily granted the use of the building for the week mentioned.

After the association had its plans well under way Whitcomb produced his option, and as there appeared to be no doubt that it was perfectly good and legal, the officers of the association immediately commenced overtures to induce Whitcomb to give up his claim, asking Whitcomb to join their ranks, with the usual payment for stock in the association.

Whitcomb maintains that his option is worth more than several shares of stock, and he declines to pay a cent. He has offered to join their show, providing they will give him first choice of space and give him a share in the profits in return for his option. Otherwise he claims he will give an "independent" show on the dates selected by the association. He claims that a number of the independent manufacturers have agreed to join him in the matter, and he believes he can get all the dealers outside the association to participate, making a creditable exhibition.

Central Armory is the only large hall available, and the week mentioned is the week which has been assigned to Cleveland in the big circuit of local shows.

BUFFALO SHOW IN MARCH.

BUFFALO, Nov. 25.—It has been definitely decided that Buffalo will have an automobile show during the week of March 13, and Convention Hall, the largest building for enterprises of this character in the city limits will be used for the purpose, as it was last winter. It is expected that the display of automobiles next year will exceed by far any previous display in Buffalo.

Plans for the show were discussed at length at a recent meeting of the Buffalo Automobile Trade Dealers' Association. The plans for an automobile show in the early spring were fully discussed.

The announcement that there will be a local show next year has been received with satisfaction by the automobilists of Buffalo, who have generously patronized previous events. The tradesmen have admitted that the shows have been profitable so far as Buffalo was concerned, but that shows were getting too numerous, and the expense of exhibiting at so many was very heavy. It was the consensus of opinion at the close of last year's local show that Buffalo would see no more auto exhibitions, the general belief being that but two shows would be held, both of national importance, one in New York City and the other in Chicago. But manufacturers have evidently changed their opinions. As for local dealers, they have entered into the spirit of the affair with unprecedented enthusiasm, so that the success of the affair is not a matter of doubt.

John D. Rockefeller has become an enthusiastic automobilist. But wait and see if he isn't only trying to prove the superiority of the gasoline machine over the electric car. —*Journal*, Hartley, Ia.

Patents

Ignition Device.

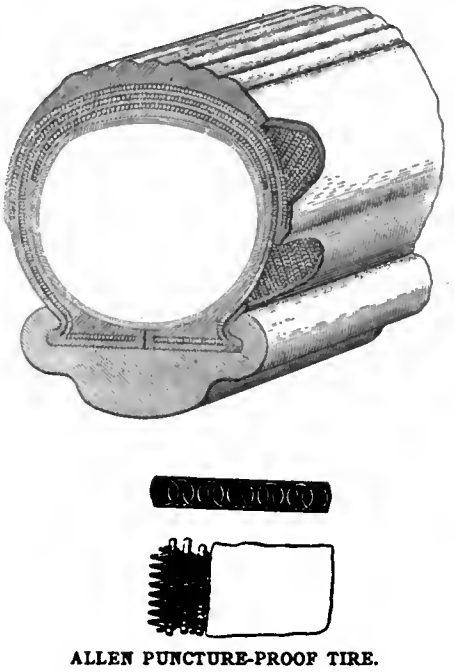
No. 801,823.—E. J. Berg, of Schenectady, N. Y.

In combination gasoline-electric vehicles, an arrangement for obtaining ignition current from the main dynamo. It consists in a supplementary brush close to one of the regular brushes on the commutator, so that it gets the potential of one or two coils only of the armature.

Puncture-proof Tire.

No. 803,659.—A. S. Allen, of Brookline, Mass.

A pneumatic tire rendered puncture proof by vulcanizing into the tread one or more layers of wire coils, connected to form a



ALLEN PUNCTURE-PROOF TIRE.

sort of fabric by longitudinal wires run through the coils, as shown in the detail sketches.

Carbureter.

No. 801,539.—J. S. Moreland, of Rochester, N. Y.

A carbureter for kerosene or other heavy hydrocarbons. A "double opposed" motor is shown, and the compression in the crank case is utilized to store air under pressure to spray the fuel.

Speed Indicator and Recorder.

No. 798,923.—E. W. Rollins, of Roslindale, Mass.

A clock, combined with mechanism actuated by the vehicle's motion, which brings into view, through an aperture in the clock dial, figures successively indicating fractions of a mile, and at the same time perforates a roll of paper, moved by the clock, at intervals indicating fractions of a mile covered. The paper is uniformly graduated to indicate elapsed time.

Variable Speed Gearing.

No. 803,701.—L. Megy, of Paris, France.

A complicated mechanism comprising an individual clutch system and devices intended to operate the clutches semi-automatically to suit the road resistance.

Crankshaft and Flywheel.

No. 800,497.—S. W. Shaw, of Galesburg, Kan.

A construction suitable for small, single-cylinder motor with enclosed flywheels. The crankshaft is formed in one piece, instead of built up as usual, and the cranks are discs to which the separately-cast, heavy flywheel rims are bolted.

Valve Mechanism.

No. 802,125.—E. R. Uhlin, of McDonald, Pa.

A single valve, having the form of a piston valve with a mushroom head at one end so that it acts also as a poppet valve, combines the functions of inlet and exhaust valve.

Signal Horn.

No. 802,386.—C. H. Foster, of Cleveland, O.

A horn, either single or siren, arranged to be blown at will by the exhaust. Its construction is such that variations in the exhaust pressure do not alter the note of the horn.

Folding Foot Rest.

No. 802,995.—H. A. Knox, of Springfield, Mass.

The folding foot rest of the Knox runabout, used in connection with the supplementary front seat of that vehicle. When not in use it folds up and partly covers the seat.

Throttle Control.

No. 803,289.—T. B. Jeffery, of Kenosha, Wis.

The tilting wheel, pivoted beneath the steering wheel, by which the throttle of the Rambler cars is controlled.

Washing Device.

No. 797,358.—H. B. Howell, of Rochester, N. Y.

A fountain nozzle for a carriage-washing hose, on which are mounted hooks arranged to hold a sponge, so that the stream from the hose will clean the sponge.

The physician who tells us to take an automobile for indigestion does not explain how we are to elude the owner. An automobile is rather an inconvenient thing to conceal.—*Republican*, Shelbyville, O.

THE AUTOMOBILE

VOL. XIII. No. 22

Published every Thursday by

THE CLASS JOURNAL CO.,

Flatiron Building, Madison Square,

NEW YORK CITY.

Cable Address - - - - Autoland, New York
Long Distance Telephone - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2 00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 5 o'clock p. m. Monday for the issue of Thursday following.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies printed in 1904,	- - - -	639,300
" "	This Issue, - - -	14,000
" "	Since Jan. 1, - - -	674,000

Cash Prize vs. Trophies. The question of cash prizes vs. trophies for drivers of winning racing cars has been raised in connection with the Florida beach meeting and decided in favor of a continuance of the award of trophies. It is a serious question and one on which there is much to be said on both sides. Mr. WALTER CHRISTIE, the constructor of the car bearing his name, has advocated the system of cash prizes, and points to the large winnings of drivers in the great foreign competitions as an aid to the development of great drivers abroad.

In sport it is generally assumed that participation in a race for a cash prize is an acknowledgment of professionalism. The application of this fundamental rule to automobile contests is responsible for a large measure of the opposition to the cash-prize system on the part of those who desire to maintain the amateur status of automobile racing. Automobile racing, however, is really not a pure amateur sport, and never can be. To be sure, club races or contests can be held under the strictest interpretation of the rules of amateur sport, but great national or international meetings cannot possibly be so managed. Few amateurs can afford to own machines capable of winning the classic events. There are sportsmen here like VANDERBILT and BOWDEN, and abroad like HEATH and LANCIA, who can afford the time and money necessary to maintain a strictly amateur status, but they form the minority among the racing men. Manufacturers directly represented by their own experts form the bulk of the participants and make the big meetings possible. The conduct of the big races, however, is not entirely professional. There is no charge for admission, for example, and the races are not held for the gate receipts. The appearance of amateurism is kept up also by the award of trophies instead of cash prizes. There is thus no incentive to anyone to make a living out of automobile racing. Were cash prizes offered, no doubt a class of drivers would come into existence which would include men owning special machines, built for the sole and only purpose of picking up purses. Jockeying and foul play of all sorts which seem inseparable from cash contests would follow, and the entire sport would be likely to fall into disrepute.

There now seems to be nothing that would prevent American drivers from earning large sums of money on the side by winning races just as the foreign drivers, except that American manufacturers do not offer such inducements. The winner of a great foreign race wins cash prizes offered by the builders of the car, by the tire makers, and by other commercially interested parties. This would be quite possible here, and without derangement of the present system of confining the official prizes to trophies of one sort or other.

✸

Efforts to Secure an Even Torque. Perhaps the highest aim of the designer of automobiles is to produce a motor whose constancy of torque and consequent flexibility and usefulness at low speeds will render unnecessary the use of the usual change-speed gear, at least under ordinary conditions. For a long time the difficulty of building reliable explosion motors made multiplicity of cylinders synonymous with multiplicity of troubles, and it is only within a comparatively short time that a motor having more than four cylinders has been considered practicable for touring cars. A number of devices have been designed to make up for the lack of flexibility of the motor and its inefficiency at very low speeds, and permit a greater number of gradations of car speed than can be obtained with the sliding gear, with its maximum of four or five changes; but the clash gear has kept in favor, notwithstanding all efforts to supplant it. The great strides made in motor construction, however, have made it practicable to increase the number of cylinders, and there are now a number of cars built with six-cylinder motors, giving excellent results, and at least one with eight cylinders; in the latter the change-speed gear is not used and is only represented by a low gear for use in case of emergency. Recent tests of six-cylinder cars abroad have shown their ability to make long runs over roads of all kinds without resorting to low gears, even when very stiff grades had to be surmounted.

While both American and foreign builders are obtaining satisfactory results by increasing the number of cylinders, there is yet another method of securing more power impulses per revolution which seems to have been left to American builders to develop; namely, by using the two-cycle motor. The fact that the two-cycle motor has double the torque constancy of the four-cycle engine of the same number of cylinders, to say nothing of its simplicity, has naturally attracted the serious attention of designers, and the defects of this type of motor have been greatly reduced; in fact, manufacturers claim that the most serious faults have been practically eliminated. There is no doubt that the two-cycle motor has been greatly improved in the hands of automobile builders, and it seems reasonable to believe that there is a future for this peculiarly American development of the explosion motor for automobiles.

✸

Specialization in Automobile Types. Evidence of the reliability of the modern gasoline automobile is displayed convincingly in the greater attention which is nowadays being paid to the coach work of the complete vehicle. Up to a comparatively short time ago this was rather a secondary consideration with the builder. He was confronted with the serious problem of constructing a mechanism that would carry passengers about the streets and roads with certainty. Questions of comfort and convenience were subordinated to the much more important one of reliability or continuity of operation of the machinery. There was very little use in building an elaborate body were the machinery not equal to the task of moving that body about when and where the owner pleased.

After the initial experiences with the shaftless carriage, which was nothing more or less than a horse-drawn body construction with a motor and transmission hitched on, came a period of more highly specialized design in which the machinery was carried on a self-contained chassis, and the body was merely an attachment reduced to the simplest possible construction—the familiar open tonneau car.

Meanwhile the electric automobile had been developing along lines for city traffic, following in general construction the models of the more elegant horse-drawn vehicles, until it has occupied a field peculiarly its own, and in which it is, and probably ever will be unrivaled.

Familiarity with the use of the gasoline touring car has convinced users, and therefore manufacturers, that the construction can be adapted to other special uses with quite as satisfactory results as are obtained with the conventional touring car. In the one direction, this has led to the introduction of highly efficient commercial vehicles of the lighter types, and in the other to elaborate and beautiful productions of the

coach builders' art for strictly pleasure use.

Reports from abroad of new models tell of an increasing number of carriages in which the machinery equipment is hidden in the body. The idea is not at all new, for it has been advocated by various builders, and many models of the carriage type have been always on the market; it is the general tendency, however, that is new. Apparently the time for specialization has arrived, and it will not be long before the man of wealth will have in his garage automobiles of as many types and styles as he formerly had carriages in his coach house. At first glance it seems like retrogression, while in reality it is in the line of progress, and gives a broad hint of the tremendous possibilities of the business and the gradual development of the automobile from an addition to the transportation facilities of the individual or family to the sole means of reliance for getting about independently of public means of transportation.

FATAL AUTO ACCIDENT.

As the result of the overturning of an automobile on Thompson avenue, Long Island City, last Saturday, Mrs. Francis Burton Harrison, of New York, who was riding in it with a party of invited friends, was almost instantly killed, and the other occupants of the car—Mr. and Mrs. Laurence I. Scott, of San Francisco, Charles T. Crocker, Mrs. Harrison's brother, and Constant Ravert, the chauffeur—were more or less injured.

According to reports, the car, a 40-horsepower Richard Brasier, owned by Mr. and Mrs. Harrison, was running at high speed, between thirty and forty miles an hour, when it swerved into the soft sand at the side of the road. At this point the chauffeur appears to have lost his head, for the car was allowed to run more than 150 feet when it struck a telegraph pole with speed practically unchecked, according to the statements of eye-witnesses, and upset. With brakes in good order the car could have been easily stopped before reaching the pole if the chauffeur had acted with promptness. E. B. Gallaher, the New York agent for the Richard Brasier car, stated that personal investigation proved the brakes and steering gear to be in perfect condition after the accident, but that one front tire had burst, corroborating the chauffeur's statement that the bursting of a tire caused the car to swerve. The police, on the other hand, state that the accident was caused by a derangement of the steering gear.

A Nutmeg state legislator thinks that the question of what to do with the emancipated and idly multiplying horses is to become, in the near future, as great a question as the negro problem. He does not suggest that the state should try to educate them and let them vote, but puts the solution of the matter up to the automobilists. —*Exchange.*

Motor Boat Club of America to the Fore.

Standing committees were appointed by the Motor Boat Club of America at the first meeting last week of the executive board of the recently organized club. To the committee on ways and means was assigned the duty of arranging for clubhouse facilities of the coming year. After making a quiet investigation of all available houses along the Hudson river bank, the officers have found one that is well adapted to the needs of the club that is located only a short distance above the clubhouse of the Columbia Yacht Club at the foot of Eighty-sixth street. All that remains, it is said, is to complete the preliminaries necessary to signing a lease. It is thought that the matter will be definitely settled inside of a month.

It was decided at the meeting to take an active part in the Paris auto boat conference in December, at which a program of international racing events is to be arranged. Secretary Morris, of the British Motor Yacht Club, has been selected to represent American interests at the conference, and he has been advised regarding a choice of dates for an international auto boat regatta on the Hudson next summer and given assurances of one or more American entries for the British international motor boat cup race for 1906.

Commodore A. D. Proctor Smith, of the Motor Boat Club of America, announced appointments as follows:

Fleet surgeon, Dr. Seymour Oppenheimer; fleet captain, Joseph S. Bunting; measurer, Francis W. Belknap.

Regatta Committee.—Charles P. Tower, chairman; Charles D. Mower and E. A. Stevens, Jr.

The other committees were filled as follows:

Ways and Means.—A. D. Proctor Smith, chairman; Frederick Sterry, George Gillig, H. S. Gambel, Charles Francis, George J. Vestner and William B. Hayden.

Entertainment.—Hugh S. Gambel, chairman; Charles M. Riedell, W. H. Williams, Jr., A. De Magnin and Louis Annin Ames.

House.—Alexander S. Williams, chairman; H. H. Beehse, Andre Massenot, C. R. Mabley and C. M. Hamilton.

Library.—John D. Roach, chairman: H. L. Aldrich, Dr. Louis Neumann, Frederick M. Crossett and Everett M. Hawley.

Membership.—C. Allen Hayden, chairman; C. E. Francis and J. A. H. Dressel.

AMERICANS AT PARIS CONGRESS.

J. Howard Johnson and William F. Hogan have been appointed delegates from the Automobile Club of America to the international automobile conference to be held in Paris from December 11 to 16, during the Paris show. Both are members of the club and have lived in the French capital for some time. No instructions have been forwarded to them by the club as to their action in the conference.

At this congress the whole subject of international racing is to be threshed out, and the fate of the Gordon Bennett and Vanderbilt cup races will be definitely settled. It is generally thought that the Automobile Club of France will tender the Vanderbilt cup to the A. C. of America, as the French club announced before the last race on Long Island that it would not again compete for the trophy.

What will become of the more classic international cup is even more in doubt, as the French club has practically committed itself to the decision to conduct only one big contest annually—the Grand Prix—and to forego competition for the Gordon Bennett cup.

MOTOR CLUB PRIZES AWARDED.

Trophies won in the recent economy contest of the New York Motor Club were presented at a meeting held at the Hotel Cumberland, New York, on Friday evening, November 24, and an enjoyable evening was spent in singing, smoking and general jollification. The W. J. P. Moore trophy, offered for the car making the most economical run per passenger, including tire charges, was presented to R. M. Owen, whose ten-passenger Reo wagonette won the trophy. The McMurtry medal, for the car having the least ignition trouble, was won by the Reo runabout, which had no ignition trouble. Mr. Owen was presented with the medal. The National trophy, for the car making the most economical run per passenger, not including tire troubles, was also won by the Reo 'bus, but owing to the fact that the trophy was not finished, the presentation was deferred. The Reo runabout also won the gold medal for the best showing made by cars costing less than $1,500, and the Morgan trophy, for the car using the least gasoline per passenger, went to the Reo wagonette. The Burrell trophy, won by the Continental Tire Co. at the Long Branch contest last summer, was also presented.

POWER BOAT CLUB IN BUFFALO.

BUFFALO, Nov. 25.—An organization that has for its object the promotion of autoboat racing in Buffalo next year has been perfected by about fifteen Buffalonians, who are greatly interested in this new sport. Officers of the Buffalo Motorboat Club have been elected as follows: J. G. R. Glasgow, commodore; N. L. Candell, vice-commodore; G. F. Elliott, rear-commodore; Jess B. Eccleston, secretary; F. W. Sherman, treasurer. The board of directors includes the officers named and C. A. Criqui, J. H. Mehrhof, H. A. Brundigo and N. S. Thomas.

It is the intention of the officers to select a suitable site along the Niagara River on the Buffalo side, if possible, or on Grand Island, and to start work at once

on a clubhouse, which, the members say, will be finished early in the spring.

As there are more than 200 power boats in this city at present, and the number is constantly growing, it is expected that some genuine sport will result among this class of water craft during the summer months.

A Notable Auto Club.

The Long Island Automobile Club, of Brooklyn, N. Y., is an organization which has taken a notably active part in automobilism from the time it entered the field, which was in October, 1900, when four men met at the office of L. R. Adams to arrange for the formation of a club. To-day there are 275 members; the club has its own clubhouse and garage, and the membership is growing at a rate that threatens to tax the present accommodations beyond their capacity within a very short time. The clubhouse, shown in the accompanying engraving, really consists of two separate buildings joined by doors. The first, which may be seen on the right, was the original clubhouse, purchased in 1904; but it was almost immediately seen that this was too small, and the following winter, 1904-1905, the adjoining property was purchased and the new building, which conforms with the architectural style of the first but can be readily distinguished in the engraving, was erected. The entire two floors of the new addition are used for garage purposes; a large electric elevator is installed, and there is a large electrically lighted pit for repair work. The ground floor of the old house is still used for car storage, the upper floor being devoted to the club rooms, which include the large general room, grille room, ladies' room, governors' room and kitchen, where every evening the club chef is in attendance to serve light meals to members. An attractive feature of the main room is the huge red brick fireplace, which on winter evenings is surrounded by a group of contented, yarn-spinning club members. A complete new steam heating plant is at present being installed in the clubhouse.

During the summer club runs and tests of various kinds are held; while in the winter the club rooms are the scene of many social gatherings, lectures and other enjoyable and profitable affairs, including the annual club banquet and a number of ladies' evenings. The location of the club house, at 360 Cumberland street, Brooklyn, is most convenient, being within half a block of elevated railroad and trolley lines, and within easy walking distance of the Flatbush avenue station of the Long Island Railroad. Excellent roads lead in all directions, and the famous roads of Long Island can be reached without difficulty. Membership in the L. I. A. C. includes membership in the New York State Automobile Association and the American Automobile Association.

NEWS NOTES OF THE CLUBS.

New York.—In its work of compiling route information, the American Motor League has issued a special circular, entitled, "How to Describe a Route," in which the best way of describing an automobile route is clearly set forth and illustrated by sample maps and diagrams. One of these circulars will be sent to any automobile user who feels an interest in the work and who will send his address by postal card to the secretary, at Vanderbilt Building, New York, N. Y.

Chicago.—The new club house committee of the Chicago Automobile Club has decided to give E. C. Wetten, a real estate dealer, the option of selecting the site for the proposed club house. Mr. Wetten has four sites in mind and will report upon his selection in a few weeks. All of the pieces of property under consideration are inside of the "loop" district. It is hoped to have the new house ready for the members by the first of May, at which time the lease of the present Michigan avenue house expires.

Cleveland.—The first number of the *Cleveland Automobile Club Bulletin* has made its appearance, dated November. It is the purpose to issue the *Bulletin* "every little while, probably once a month," depending on how well it takes with the members. It is a six-page pamphlet containing news and announcements of particular interest to the club members. Among the announcements is one relating to a new road book that the club has in preparation. This is intended to show the main roads between the principal cities of Ohio, and members are requested to contribute descriptions of the different routes they traverse, so that a generous fund of reliable information may be collected.

New York.—The Long Island A. C. will resume its winter talks on different makes of car on Friday evening, December 1, at its clubhouse at 360 Cumberland street, Brooklyn. The 1906 models of the White steam and Lambert gasoline cars will be the subjects, and experts in each will be on hand with machines to explain all features of construction and operation.

Cincinnati, O.—The Cincinnati Automobile Club, of which Val Duttenhofer is president, is preparing to fight what its members consider excessive toll charges on the highways, and will send a delegation to Columbus this winter to demand legislation.

Baltimore.—The A. C. of Maryland toured to Ellicott City, an historic old village on the banks of the Patapsco in Maryland, on Sunday, November 19, and after dining there the members returned home by a roundabout way. It is very probable that a party of club members will attend the race meet at Ormond next January.

New York.—The New York Motor Club is preparing to hold a show of racing trophies, posters and automobiling photographs during the week of the automobile shows, January 13 to 20. The exhibition will probably be held in the clubrooms at the Cumberland Hotel.

Cape May, N. J.—Al Depew has been elected treasurer of the Automobile Club of Cape May.

Worcester, Mass.—The Worcester A. C. was incorporated recently with 125 charter members.

A FEW MEMBERS OF THE L. I. A. C. IN FRONT OF NEW CLUB HOUSE ABOUT TO START FOR SUNDAY MORNING RUN.

PLANS SHOW IN BALTIMORE.

Baltimore, Md., Nov. 25.—While no definite arrangements have been made, it is announced that an automobile show will be held in this city some time during the early part of next year—probably in February. The Lyric, a large building formerly known as the Music Hall, is mentioned as the place of exhibition. Howard A. Gill is the prime mover in the enterprise.

Automobilists should exercise more care in their runs about the city. There is a tendency to turn short in going around corners. This has a likelihood to frighten horses, and may be the means of injuring people who are about to cross the street at the time. If the chauffeurs would plan to make a wider circle in turning the corners, there would be less chance for accident.—Fond du Lac (Wis.) *Bulletin.*

French Tire Competition.

PARIS, Nov. 17.—The Committee of the Automobile Club of France, after many weeks of close studying, have at last issued the regulations governing the tire race which the club will hold next year. As has already been reported, this consists of a reversion of the ordinary principle of road racing, the competitors in this event being at liberty to change any part, or the whole, of the motor, but must not touch the tires.

The race is open only to constructors of tires or patent automobile wheels, and not more than four cars can be entered by any one firm, the entrance fee being $600 per vehicle. Every engagement must be accompanied by a full description of the wheel or tire, and before being officially accepted must be approved by the sporting commission. Each constructor may choose the type of car which he considers most suitable for his wheels and the nature of the competition. The distance to be covered will be from 625 to 937 miles, and will be run off in either one or two stages. The minimum weight of chassis allowed is 2,200 pounds when empty, and maximum weight 2,750 pounds, with an allowance of 15 pounds for magneto. Two passengers must be carried side by side, their weight to be 132 pounds each, the deficiency, if any, to be made up by ballast. Behind the two seats must be fixed a locker 70 cm. wide, 70 cm. long and 50 cm. deep, to receive a charge of 880 pounds in bags of sand. This box will have a lid and will be closed and sealed during the race. By chassis is meant the motor and transmission gear, radiator, brakes, axles, springs, wheels and tires, water, gasoline and oil tanks, and a body work without cushions.

Competitors must carry the same kind of tires on all four wheels. Provision is made for two classes of tires: (1) Pneumatic tires having no other means of elasticity than the air under pressure between rim and outer envelope; (2) tires of every other kind, consisting of solid rubber, springs, or a combustion of the two. In the first class the smooth outer cover, the anti-skid bands, the movable non-skid bands, as well as the tires to which they are attached, shall all be sealed before the race. Each car will also be allowed four spare inner tubes, which will also be stamped, and can be changed at will, but it is absolutely forbidden to use any other than these. Repairs to tires may be effected during the contest, but they must be carried out by the two men on the car and with the ordinary equipment allowed.

The regulations for class No. 2 are rather more complicated. When making an entry the constructor must furnish a design of the wheel or tire, a complete wheel or complete tire, the part or parts which he desires to change during the contest, the number of times he expects to be obliged to change, and a complete description of the manner in which changes are made, as well as the approximate time necessary to make such change. The sporting commission will decide each case separately, and will give a reply to the competitors within fourteen days of the receipt of engagement. Should the competitor not be satisfied with the conditions imposed he may withdraw from the race and will be refunded 50 per cent. of the amount of his entrance fee, provided that the demand is made within eight days. Repairs must be carried out under the same conditions as for ordinary tires; that is, by the men and with the tools carried on the car. If the race is run in two stages all the cars finishing the first part will be guarded in a closed garage until the commencement of the second race. No gasoline, water, or oil may be put on board until after the second start has been given, and the time occupied in doing this will be counted in the race. The winning car will be the one that has covered the total distance in the shortest time, and which shall at the finish be equal to its weight at the start, and be provided with all its officially stamped wheels, tires and other parts. A team classification will also be made, in which regularity of running will be the basis.

PENNSYLVANIA ROAD LAW.

Expected that Legislature Will Amend the Act Appropriating $6,000,000.

PHILADELPHIA, Nov. 25.—Although the call for an extra session of the Pennsylvania Legislature issued recently by Governor Pennypacker failed to mention the good roads issue, there is no doubt that at the regular session a determined effort will be made to so amend the present law, passed at the last session, as to make it acceptable to the counties and townships. Up to the present time but a comparatively small portion of the money available—upwards of $6,000,000 was appropriated, to be expended within five years—has been called for by the counties and townships, because of various objectionable features of the law. In many quarters it is asserted that the law was purposely passed in its present shape in the belief that but few calls would be made upon the fund.

With $6,000,000, it is claimed, a very fair start can be made in providing good roads in the state, but at the present rate of expenditure that amount of money will last ten or fifteen years. With a reform legislature the good roads advocates believe they can frame a satisfactory law, but it will mean a wait of at least two years.

GRANGERS WANT SEVERE PENALTIES

Worthy Master Aaron Jones, of the National Grange, Patrons of Husbandry, seemed to strike a popular chord when, at the annual convention of that body in Atlantic City recently, he spoke of the automobile and its relation to travel upon country roads. His remarks seemed to meet with the approval of a large proportion of the delegates present when he said:

"There is no doubt of the right of autoists to legitimate use of the highways, but that use should be regulated by wise laws vigorously enforced and the penalties for their violation should be sufficiently severe to serve as an effectual warning against violations by others. The reputable autoists owe it to themselves to join with the people in this movement against the reckless. It would be well to have uniformity in such laws in the various states and a uniform policy for their vigorous enforcement."

The employment of convicts in building and repairing roads also came up for discussion during the convention.

OBSTACLES TO AUTOING IN IOWA.

OTTUMWA, Ia., Nov. 25.—There is a great automobile movement in this city, but the bad roads and the farmers are serious obstacles. The farmers are said to be decidedly unfriendly. They won't help improve the roads, and they don't want to divide the use of them with automobilists. When an automobile agent was asked regarding the future of the automobile in his town, he said that he would much prefer a flying machine—that would be the only contrivance that may be used in Wapello county.

Despite the fact that the roads and the soil tillers are against them, the auto people are forging ahead. There are more than twenty-five machines in the city. The Olds company has an agency here which has sold ten of its machines. There is said to be but one road on which automobiling is anyway satisfactory. Most of the driving is done on the brick-paved streets.

VERDICT FOR $5,000 DAMAGES.

A verdict for $5,000 in favor of the plaintiff was rendered in Cumberland, Md., on November 11, after a jury trial, in a damage suit brought to recover for the death of John Cashman, who was run down in Hagerstown by an automobile driven by John Roulette. The action was brought by the widow, Catherine Cashman.

Plaintiff charged that the defendant ran over the deceased while driving his automobile in a fast and negligent manner. The defendant, Roulette, who is a young man in partnership with his father in a knitting mill in Hagerstown, alleged that Cashman ran out of a saloon door directly in front of his machine, and that the defendant was powerless to prevent the accident. About forty witnesses were called in the trial, which lasted for two days. The verdict of the jury was in favor of the plaintiff, and the judge fixed the amount of damages.

C. E. Bishop bought the six horses of R. B. Vermilyea last week, and we guess that it will be an automobile that Mr. Vermilyea will purchase next. Mr. Vermilyea has been contemplating getting one for some time, and from all appearances it will be on hand in a few days.—Unionville (Ia.) *Chronicle.*

NEWARK'S HORN INDUSTRY.

From 60 to 70 Per Cent. of Domestic Horns in Use Made in Jersey.

NEWARK, N. J., Nov. 27.—Somewhere between 60 and 70 per cent. of the automobile horns of domestic manufacture that are in use in this country are made in this city, according to a report made by the local board of trade. One Newark factory alone produces from 65,000 to 75,000 auto horns annually, of various sizes, shapes and prices. This plant is working overtime to keep up with its orders.

The growth of the business has been wonderful. Not very long ago this concern was making only one style of horn, with a rubber bulb attachment for forcing the wind past the reed that creates the sound. It was so small that it was scarcely more than a toy. At that time there were only a few American horns on the market, the demand being for French and German horns. Concluding that horns could be manufactured as well here as abroad, this concern made special tools and began bending its energies towards the production of a first-class horn that would be the equal in appearance and durability of any turned out in factories across the Atlantic. At first there was only a slight increase in the demand for any of the six varieties of automobile horns made, but gradually the sales grew in number and quantity until now the concern is making thirty different kinds of horns which retail for from 50 cents to $15 each, and these are being shipped to every section of the country where automobiles are used.

Among the thirty different varieties made are little horns and big ones, horns that emit a shrill, piping sound; some that wail and cry like a soul in torment, and some that resemble a deep fog horn when blown. There are horns with a single twist, and others that show several turns and three or four feet of flexible brass tubing. Some are made to fasten to the steering wheel near the hand of the driver, while others have tubing attached to the horn and leading from any part of the car where the horn may be attached to a point near the hand of the driver where the bulb is secured.

NEW CLEVELAND SALESROOM.

CLEVELAND, Nov. 27.—The Paxson Motor Company, recently incorporated, has opened a fine establishment in the Pythian Temple Building, 317-319 Huron street, in the quarters formerly occupied by the Ohio Motor Car Company. It has two large storerooms and a large basement. The latter is accessible by an incline leading from Erie street, a most convenient method of entrance, which eliminates the undesirable scheme of having cars run through the salesroom from the front. A repair shop is being fitted up in the basement and the company will have a good line of supplies. The company is headed by C. D. Paxson, president and general manager, with Robert Drach, secretary-treasurer, and Lewis Schmidt, shop superintendent. The Jackson and Wayne lines will be handled and samples of a number of new models are being shown. A special effort is being made to introduce a new delivery wagon, the chassis for which is furnished by the Wayne company and the body built in this city to suit the requirements of purchasers. These wagons have 5- by 5 1-2-inch, 20-horsepower horizontal opposed engines, pressed steel frames, planetary change gears, double band brakes on hubs and light wood top.

NEW SARATOGA SPRINGS GARAGE.

SARATOGA SPRINGS, Nov. 27.—Architects' plans are being prepared for a fine new garage to be erected by J. A. P. Ketchum on a plot of ground adjoining Convention Hall, on Broadway, which he bought a few days ago. Work on the construction of the building is to begin as soon as the plans are finished, and the structure is to be ready for occupancy by spring.

The garage is to be 100 by 150 feet in size, but it has not yet been decided whether it shall be one or two stories high. It is to be of fireproof construction, floored with cement, and to have an entire front of plate glass. It is proposed to make it ornamental and to equip it with all modern facilities. The total cost is estimated at $25,000.

CLEVELAND SECOND-HAND MART.

Brock's Garage is the title of an establishment which will be an important factor in the sale of second-hand cars in Cleveland the coming season. Charles Brockway, who formerly handled second-hand cars in Chicago, is at the head of the company, which occupies a large store at the corner of Bolivar and Erie streets, in the heart of the automobile district. The company handles second-hand machines exclusively, either buying them outright or selling them on a commission basis. At present it has more than fifty cars in stock, and has arranged for another store in the same block, which will give it large additional space for the many machines which are constantly coming in.

Mr. Brockway has bought out the Reliable Automobile Company, which did repair work exclusively, in a large and well-equipped establishment on Bolivar street, a short distance from the Brock establishment. The two establishments will be conducted separately, but the arrangement will enable the second-hand concern to save considerable on repair work and the rebuilding of cars.

DRIVES BY FIFTH WHEEL.

A new company, known as the Oliver Trackless Car Company, was recently organized in South Bend, Ind., for the purpose of manufacturing pleasure automobiles and traction cars powered with either gasoline or steam engines and driving through a single traction drum called a "fifth wheel." The inventor and promoter is Frederick William Oliver, who has taken up his residence in that city. The vice-president and general sales agent is A. J. Diermeyer, of the firm of Miller & Diermeyer, makers of agricultural implements and machinery. In an interview Mr. Diermeyer said:

"The work of manufacture is being carried on at present in South Bend and Chicago, the castings being made by different foundries and the complete machines assembled here. They are propelled by a drum-like fifth wheel, arranged under the center of the vehicle to run in bearings on two hinged arms, which project downward at a slight inclination, and are drawn forward by tension springs, which tend to hold the wheel against the ground and increase its traction. The tension is under the control of the operator when the machine is traversing a bad road. The drive wheel is made hollow and is used as a muffler."

The small machines will be similar in appearance to an ordinary pleasure automobile except for the central drive wheel. The larger ones are intended, however, to be used in hauling loaded farm wagons from field to barn and from barn to market.

The promotors have aroused much interest in their enterprise by the novelty of their proposal to adapt the new machines to farm work and also by the announced intention to operate an automobile omnibus line between South Bend and Plymouth, Ind., taking in Lakeville, Lapaz and other towns on the old State Road, and another line to St. Joseph, Mich., passing through Buchanan, Glendora, Baroda, Vineland, and other intermediate points in Michigan's fruit country.

GASOLINE PERMIT REQUIRED.

The court of appeals of the District of Columbia, at Washington recently, rendered a decision affirming the judgment of the police court in the case of the Cahill Automobile Co. against the District of Columbia. The question at issue was the validity of the police regulation governing the storage and sale of gasoline without a permit. The Cahill company operates a garage on L street, where it stored gasoline in an underground tank without securing a permit. With a view to making a test case Mr. Cahill submitted to an arrest. He was convicted and fined in the police court, whereupon an appeal was taken to the higher court, the case being argued at length by W. C. Duvall, president of the Automobile Club of Washington. The court held, however, that the regulation was valid, and that the proof was sufficient to sustain the conviction.

An American speeding over the Continent of Europe in his automobile asked of his chauffeur: "Where are we?"

"In Paris," shouted the man at the wheel, and the dust flew.

"Oh, never mind the details," irritably screamed the American millionaire; "I mean what continent."—*Exchange.*

News and Trade Miscellany.

Automobile drivers of Detroit, Mich., have organized with twenty-four charter members a society to be known as the Detroit Chauffeurs' Association. The object of the association is social and instructive, applicants to membership having to pass a rigid examination. The society will open club rooms as soon as a suitable place is found.

An enjoyable automobile tour was one recently made by Mr. and Mrs. John Woodward, who left their home in Dayton, Ohio, early in May and journeyed by easy stages across Ohio, New York and Massachusetts, through New Hampshire and Maine to Weld, a small town in the heart of Franklin county. Here the tourists spent the summer, returning in September to Boston via the White Mountains, and then traveling south to Birmingham, Ala., where they will reside this winter.

The Reliability Race recently run between Melbourne and Sydney, Australia, was won by a Mercedes car fitted with Continental tires.

The Wayne Automobile Company, of Detroit, Mich., has closed the following agencies: A. T. Wilson, Denver, Col.; Paxson Motor Company, Cleveland, O.; Greenville Motor Company, Greenville, S. C.

Considerable activity in the way of improvements about the plant of the H. H. Franklin Manufacturing Company is noted. A considerable strip of property north of the main building, facing on West Marcellus street, has been obtained. The old buildings have been removed, the ground graded, and the property is now being enclosed by a high board fence. This will furnish additional yard facilities.

The Central Automobile Company, of Cleveland, has been acquired by Alvin H. Smith and A. B. Wiel, T. T. Long, who has been at the head of the company, having retired. The company has a large garage and salesroom at 32 to 38 Vincent street and handles the Studebaker gasoline and electric cars. Some of the gasoline models are being built in Cleveland at the old plant of the General Automobile Company. This year they will have two styles of Studebaker gasoline cars and three electric models.

Gardner, one of the larger towns of Worcester County, Mass., is to have one of the best equipped automobile stations in this vicinity, construction work to be begun at once. Levi H. Greenwood will build the new station, which is to be run in conjunction with the Windsor House, a favorite stopping place for automobilists visiting Gardner. A Worcester firm, Scovil & Wheeler, have the contract for the work.

Work will probably be commenced this winter on the construction of a magnificent automobile road and pleasure driveway between Cornwall-on-the-Hudson and West Point, to take the place of the present road which winds over Cro' Nest Mountain, and which is too steep for safe pleasure driving. This is the highway which has often been compared with the famous road along Lake Lucerne in Switzerland, and from which is viewed some of the most beautiful scenery in New York state.

T. C. Whitcomb, a large, "independent" dealer in Cleveland, has moved into a new store at 400 Erie street, which has been handsomely fitted up with a large salesroom in front. Mr. Whitcomb is building an addition 50 by 50 feet, which will be used as a repair shop. This year he will handle the Premier, Rambler and Maxwell lines. He his six samples of the new Rambler line. He says that many persons are already looking for 1906 cars, and the ability to show a sample and guarantee the delivery of the machine whenever it is wanted is a great lever in closing up a deal at once.

R. H. Magoon, who has a fine new establishment at 410 Erie street, Cleveland, has taken on the Locomobile line, which he will handle in addition to the Pope-Toledo, with which he had great success during the last two years.

Apropos of the expenditure of fifty million dollars by the state of New York for the betterment of public highways, it is the intention of the State Engineers to so lay out the roads through each county as to form a continuous highway from one end of the state to the other, sixty-one miles of the entire distance having already been completed.

The idea of a test track on which machines may be tried at their full speed capacity, without danger to the public, is gaining ground rapidly. The Moline Automobile Company, of East Moline, Ill., is building a circular track a quarter of a mile long and twenty-two feet wide, on which its cars may be tried before being offered on the market. Windsor T. White, of the White Company, is quoted as saying that he is ready to contribute his share to the construction of a track, ten or fifteen miles in length, to be controlled and supported by the various manufacturers. A short private track has long been in use by the Rambler concern in Kenosha, Wis.

In connection with the new Pennsylvania law that after January 1, 1906, each automobile must carry two license tags, contract has been awarded by the State Highway Department to the Ingram-Richardson Manufacturing Company, of Beaver Falls, to supply the tags, which are to be of blue enamel with white figures and having slits to insert straps.

Joseph Tracy, the well-known automobile expert and amateur driver, who won third place for an American car in the Vanderbilt race, sailed for Europe last Tuesday, to attend the Paris show. While abroad Mr. Tracy will extend his investigations to cover the British industry, and will execute various commissions with which he has been entrusted.

W. R. McKeen, Jr., superintendent of motive power and machinery of the Union Pacific, is responsible for the design and construction of the new self-propelled railroad coaches built at the Omaha railroad shops, and which have been very successful in operation. The work of these coaches is attracting the attention of traffic managers throughout the country.

Con Baker, Philadelphia agent for Smith & Mabley, is making his headquarters at the Bellevue-Stratford garage.

Coincident with the reappearance of winter has come a demand for closed cars. Recent purchasers of limousine cars, reported by Smith & Mabley, include George D. Widener, Renault; Mrs. Josephine Widener, Leon Bollée; Caleb Fox, Simplex; H. Carstairs, Simplex. George H. Earle, Jr., has ordered a Simplex chassis, and two bodies —an open touring and an opera 'bus.

After an extended trip through the East to get the latest ideas in construction and equipment, Mr. Mathewson, of the Mathewson Automobile Company, of Denver, has returned and had plans prepared for a new garage which, he says, will be the most complete and up-to-date in the West. It is to be erected at 1622 to 1626 Broadway, Denver, and is to cost $20,000. It is to be completed by January 1. Two of the oldest landmarks of the city are being razed on the site.

Jacob Roth, of Erie, Pa., a dealer in bicycles and automobiles, is erecting a two-story building on State street, a part of which will be used for the display of new cars, and is putting up a garage at the rear of the building to be 80 by 75 feet, of fireproof steel construction. Mr. Roth expects to occupy the new building by March 1.

The National Motor Boat and Sportsman's Show will open at Madison Square Garden February 20, 1906, and continue to and including March 8. Applicants for space at the Garden include most of the old exhibitors and many new ones, and the affair will undoubtedly be attended with its usual success.

Pending the completion of its new building, now under course of erection, the Mar-Del Mobile Company, of Baltimore, has opened a temporary garage at 872-874 Park avenue.

The Fisk Rubber Company's Boston branch has been removed to 239 Columbus avenue, the store formerly occupied by the Oldsmobile Company, and almost directly opposite its former location.

C. W. Blackman, who has been connected with the *Horseless Age*, has severed his connection with that publication to take the position of manager of sales with the Parish & Bingham Company, of Cleveland, O., in which company he has acquired an interest.

The Winkley Company, makers of oiling devices, will shortly remove its plant from Hartford, Conn., to Detroit, Mich. This company has added to its line the Garllus carbureter and the Eureka separator.

The Pure Food Exposition, to be held this winter in Jacksonville, Fla., will include an exhibit of automobiles, the arrangements for which are in charge of W. J. Morgan. Mr. Morgan is now canvassing the automobile manufacturers and dealers, in an effort to get them to exhibit their output, and hopes to have some of the foreign cars on exhibition at the show.

The following agencies have been closed by the Jackson Automobile Company, of Jackson, Mich.: E. P. Blake Company, Boston, Mass., New England representatives; E. K. Hauser, Washington, D. C.; Diamond Motor Car Company, Philadelphia, Pa.; East Liberty Auto Company, Pittsburg, Pa.; L. C. Howard, 1655 Broadway, New York; Ormond Auto Company, Brooklyn, N. Y.; Paxson Motor Car Company, Cleveland, O.; Seidler & Miner Company, Detroit, Mich.; Hagmann & Hammerly, Chicago, Ill.; Motor Car Company, Minneapolis, Minn.; Jackson Automobile Company, St. Louis, Mo. In Rochester, N. Y., the Jackson output will be handled by the Standard Automobile Company, which was recently reorganized under the laws of the State of New York, with a capital of $20,000.

The Topeka Auto and Cycle Company, of Topeka, Kan., has taken the agency for the Mitchell cars in that city and adjoining territory.

J. M. Padgett, of Topeka, Kan., will handle the Waverly electric cars in addition to the Stevens-Duryea output.

The Albright Manufacturing Company, whose incorporators are all residents of Muscogee County, Georgia, has applied for a charter to enable it to do business in Columbus, Ga. The corporation is capitalized at $14,000 and will carry on a general manufacturing and repair business.

The Kansas City Motor Car Company, of Kansas City, Mo., has purchased a site on West Ninth street, opposite the Savoy Hotel,

on which a three-story garage will be erected, to be ready for occupancy about January 15, 1906. The new manufacturing plant of the company at Sheffield, a suburb of Kansas City, is to be ready December 15.

The Parker Automobile Company, of St. Louis, Mo., has secured the agency for the Baker electric cars. This company also handles the Thomas and Autocar machines.

Ray M. Owen has secured the New York agency for the Premier.

The entire output to October 1, 1906, of Reeves four-cylinder, air-cooled motors, made by the Reeves Pulley Company, Columbus, Ind., has been contracted for by a new automobile manufacturing company of Detroit men. A. Y. Malcomson is said to be at the head of the new company, in which H. H. Thorp, formerly of the H. H. Franklin Manufacturing Company, is interested.

The Colonial Automobile Company, recently incorporated in St. Louis, with a capital of $15,000, has taken the St. Louis agency for the Reo and the Stoddard-Dayton cars. The company, of which S. J. Keiffer is manager, expects to commence operations December 1, using the building at 3944 Olive street as headquarters.

The Cadillac agency for St. Louis has been taken by the Bagnell Automobile Company, who will open shortly in Olive street, between Sarah and Whittier streets. The Cadillac Company was formerly represented in St. Louis by the Halsey Auto Company.

A. H. Chadbourne, vice-president of the Cape May Automobile Club, is now associated with E. B. Gallaher, the New York agent for Richard Brasier and Cleveland cars.

Wilbur C. Walker, secretary of the Pope Manufacturing Company, of Hartford, Conn., has adopted a novel means of demonstrating the efficiency of the new four-cylinder Pope-Hartford car. Mr. Walker is visiting the Pope agents throughout the country in the car, having already shown the machine in the various Eastern cities, and has started on an extended Western tour.

G. G. Williams & Son, of Charlevoix, Mich., have removed to New Bedford, Mass., where they will open an automobile garage and repair shop.

The E. R. Thomas Motor Company, of Buffalo, N. Y., has begun the manufacture of a thousand machines, which will be sold with a guaranteed speed of a mile a minute. The price of the machine is to be $3,500.

The H. H. Franklin Manufacturing Company has secured an entrance to its repair shop from Gifford street. Removal of several old buildings permits of the erection of a suitable structure provided with reading and smoking room for the accommodation of customers who run their cars to the factory for emergency repairs.

W. B. Durphey has succeeded F. J. Fanning as Chicago manager of the Electric Vehicle Company.

W. E. Metzger, who has been in the retail trade at Jefferson avenue and Brush street, Detroit, has sold out his business, and the Cadillac Motor Car Company will occupy the store as its local branch.

Manager McMasters has resigned his position with the Detroit branch of the Hartford Rubber Works and will manage the local branch of the Firestone Tire and Rubber Company.

The Motor Car Company, recently incorporated in Detroit, has leased the old Stearns factory on Twenty-first street and is now putting in new machinery, preparatory to the manufacture of a friction drive car, to be listed at $1,250, after the design of B. J. Carter, who is superintendent of the new company.

The Briscoe Manufacturing Company, of Detroit, is building an extension to its plant and has leased the building on the opposite side of Baltimore avenue, at present occupied by the Whecler Manufacturing Company, who will shortly vacate the premises.

The Merrill-Stevens Manufacturing Company, of Kalamazoo, Mich., for twenty-one years engaged in the manufacture of railway goods, has changed its name to Cook's Railway Appliance Company. There will be no change in the management of the company.

P. C. Rutan, of Port Jervis, N. Y., who has for some time been conducting a bicycle and automobile business on Front street, will early in the new year open a similar business in Middletown, N. Y., and for this purpose is erecting a concrete garage, 30 by 100 feet, facing North street, near the Erie depot.

The following agencies have been closed by the Winton Motor Carriage Company: The Success Automobile Company to cover southern California; the control of Hawaii territory to the Pioneer Automobile Company, of San Francisco; the Troy, N. Y., Automobile Exchange to handle the car in Schenectady, N. Y.; the Broadway Automobile Company, present agents in Seattle, will open a branch in Portland, Ore.

A. Fisher, of Detroit, Mich., who has been engaged in the manufacture of carriages and wagons, has converted his establishment into an automobile salesroom and repair shop. Mr. Fisher's place is at 302-310 Fort street, west.

The Welch Motor Car Company of Flint, Mich., has certified to an increase in capital from $100,000 to $250,000.

The Traverse City Motor Boat Company has been organized at Traverse City, Mich., with a capital of $10,000. The company has purchased a two-story factory building and will manufacture power boats. Enough orders are already on hand to keep the factory employed all winter.

Daniel Cohen, formerly of the Reo agency in New York, has succeeded Manager Stockbridge as head of the Philadelphia headquarters of the Reo in the Mint Arcade.

Alexander Winton is building a motor for a modern cruising power boat which will be equipped for his own use. The craft will have an over-all length of 52 feet and a beam of 10 feet and will be handsomely furnished and equipped throughout. Mr. Winton is a member of the Lakewood Yacht Club, of Cleveland, and his residence faces on the lake front. He expects to take a cruise in the boat next summer.

The Central Automobile Company of New York city has leased the George McNulty livery stable, which it will occupy as a garage after extensive alterations have been completed.

The Holmes-Schmidt Company has taken the Chicago agency for the Glide and the Maxwell cars, which it will handle in addition to the Welch.

The Currie Motor and Cycle Company of Battle Creek, Mich., which purchased the stock of Losey & O'Riley, has been incorporated under the title American Motor and Cycle Company, with a capital of $10,000. The plant is located at 35 East Main street. The officers are as follows: C. G. Currie, president; F. Jay Rathbun, secretary; Charles E. Moore, treasurer.

A garage and automobile machine shop business is to be established in Fort Wayne, Ind., by Messrs. Amos J. and Peter Roussey, under the firm name of Amos J. Roussey & Bro. The company will occupy the Pfeiffer building at 219 to 223 Pearl street.

Frank H. Bowen, recently with the Renault Company, and who occupied a position with John Wanamaker when the latter held the agency for the Ford car, has connected himself with the Wayne Company, of New York.

The Rainier Company has closed with the Morristown Garage Company to act as its representatives in middle New Jersey, and with T. S. Morse, Lenox, Mass., for the Berkshire district.

Charles E. Fay, for two years assistant manager at the Boston branch of the Winton Motor Carriage Company, has accepted the position of New England manager of the Ford Motor Company.

One of the attaches of the Olds Motor Works, although not really an employee of the firm, is Chan Hoey, a full-blooded Chinaman from Shanghai, who is taking a course of instruction with the idea of returning to Shanghai to establish a general machine and repair shop. He is learning the construction and operation of the various models manufactured by the Olds company. Chan came to America about fifteen years ago and attended school at Boston. Eight years ago he entered the works of the General Electric Company at Lynn, Mass., where he remained for about two years, and then went to Schenectady shops. Later he entered the employ of the Westinghouse company in Pittsburg, where he worked until about two months ago, when he went to Lansing. He expects to return to China in January. In addition to Chan, there is a Japanese, a Russian and a German studying gasoline engine and automobile construction in the Lansing factory.

The Rock Island Battery Company, which manufactures dry batteries, has removed from Rock Island, Ill., to Cincinnati, O.

The Phœnix Automobile Supply Company, recently incorporated in St. Louis, has taken over the stock of the Auto Exchange & Supply Company. Mr. Mulford is president of the company and A. L. Dyke is manager.

The Reo Motor Car Company is adding to the attractiveness of its office bnilding in Lansing, Mich., by the erection of a porte-cochère.

RECENT INCORPORATIONS.

The Walker Motor Car Co., Detroit, Mich.; capital, $300,000.

American Motor & Cycle Co., Battle Creek, Mich.; capital, $10,000.

The Private Garage, Brooklyn, N. Y.; capital, $2,000. Directors: C. H. Hyde, S. K. Kellock, J. F. Meeder.

Leon Rubay, New York; automobiles; capital, $25,000. Directors: Leon Rubay, C. N. Pitcher and H. J. Hinley.

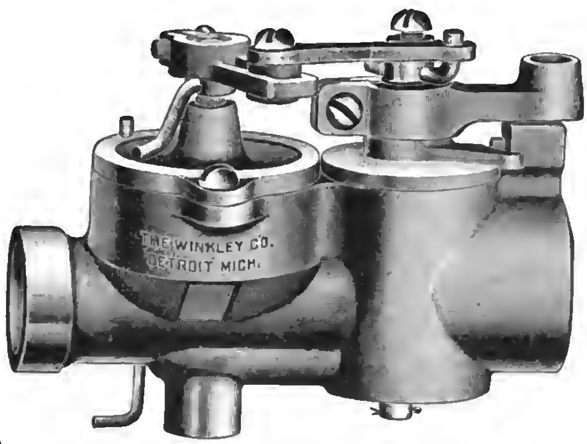
Craven Sectional Tire Company, Albany, N. Y.; manufacture automobiles; capital, $40,000. Directors: H. O. Craven, Langdon Gibson, Gaylord Logan.

Roseville Motor Co., 830 Broad street, Newark, N. J.; manufacture motor vehicles, engines, machinery, etc.; capital, $25,000. Incorporators: E. U. Mott, Henry Setlow, G. M. Barnes.

While Elmer Cooper, who lives near here, was grinding corn his engine broke down, but he got out his auto, jacked it up on wheels, geared it to his mill and ground corn with it for several days until his engine was repaired.—*Crescent*, Frankfort, Ind.

INFORMATION FOR BUYERS.

Garllus Carbureter. — A carbureter working without a float has been placed on the market and is manufactured by the Winkley Company, of Detroit, Mich.; the device is called the Garllus carbureter. It is exceedingly simple in construction, having for its main part a short cylindrical casting, lying in a horizontal position; rising vertically from the bottom is the spray nozzle, at right angles to the direction of the current of air through the carbureter. When the engine is not running a needle valve rests on the opening of the spray noz-



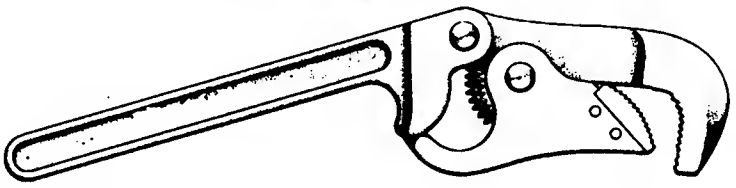
GARLLUS FLOATLESS CARBURETER.

apt.
to th
both in
sults, so
used for t.
practically t.
automobile m.
with minor c.ow of gasoline. The
to adapt them td to a disc placed in
new class of work bove the spray noz-
'his chamber, over
motor recently con.n with the mix-
pleted for a western tion of the en-
railroad, however, dif- the disc, and
fers radically from opening the
others used for the ine to flow.
same work, and com- rse, in pro-
bines a number of egulated
features which, in ustment
view of the condi- burcter
tions, are novel. two-
used
ork.
In the first place, duc-
the motor is very lome-
large, having cylin- objec-
ders 8 inches in diam- oring,
eter and 8 inches pis- out an
ton stroke; and these orce to
dimensions are the a circu-
more notable in view r of fea-
of the fact that the states that
utely unaf-
motor is of the two- trument or by
cycle type and is air ept that of the
them; and that
cooled by convecti. pointer is always
The motor is rate position of the in-
100 horsepow jarring of the car or
is, we be fluences. The standard
miles an hour to 50 miles,
large distance figures are red fig-
two-c g the number of minutes per
has ne various distances. The hand
n, straight, black bar, readily seen
m light; familiarity with the instru-
makes it unnecessary to actually read
figures, the position of the hand show-
the speed, just as the position of the
ds of a clock will show the time, even
he figures cannot be seen. A stop but-
is fitted, so that the hand can be locked
n position if the instrument is needed in
ourt; for instance, as evidence against a policeman's judgment. The Veeder odometer attached to the instrument measures the distance traveled, and also serves as a check on the correctness of the speed indicator. Drive is by bevel gearing from one of the front wheels of the car, a flexible shaft passing up to the speed indicator. Owing to the arrangement of the gearing there is no sharp bend of the flexible shaft near the gears; and a sharp bend near the instrument is avoided by placing the case overhanging the edge of the dash. The pinion shaft runs in ball bearings; the spindle carrying the indicating hand is mounted in a sapphire watch jewel, and all working parts are made for durability. The Loring speed indicator can be fitted to any car.

Lo-Swing Lathes.—Under the name of the "Lo-Swing Lathe," a machine tool embodying many points of novelty in lathe construction and a wonderful capacity for output of accurate plain turning has been put on the market by the Fitchburg Machine Works, of Fitchburg, Mass. It is a curious fact that while there has been an enormous advance in recent years in machine tools for the production of complicated work, such as machine screws, small parts in which the operations of turning, boring and screw cutting are alternately or simultaneously performed by hand or automatically, there has been comparatively little progress in the direction of plain work necessitating the use of lathe centers. To meet this need the Lo-Swing lathe has been designed. It is specially intended for all straight turning on centers, with any number of diameters and any number of shoulders ranging from 1-2 inch to 3 1-2 inches and all lengths up to 60 inches. The installation of machines of this type means not only the rapid production of true cylindrical work, but the freeing of larger engine lathes from small work, which in many shops occupies the larger machines to the exclusion of their legitimate and more profitable work—sending a man to do a boy's work. As the illustration shows, the lathe has only a general resemblance to an ordinary engine lathe. There is a head stock and a tail stock and four carriages, the latter designed to slide past the tail stock without disturbing the work. The tool carriage differs from the ordinary combination of slides and bridges —in which any lost motion is summed up at the tool point—in consisting of a solid block of metal sliding on a rectangular guide rail. The cutting tool is a piece of high-speed steel fitted in the end of a cylindrical holder and held into its work by a suitable adjusting screw, the handles of which are shown extending rearwardly at the tops of the carriages, in the illustration. It will thus be seen that the screw which controls the cutting tool takes its bearing directly against the end of the tool, and not several inches below it, as in an ordinary slide rest. The cutter holder can be instantly removed by releasing a clamp in the carriage and a new tool substituted. The four carriages are tied together in pairs, and the sets can feed in the same or opposite directions. Two roller follower rests are also supplied. There are seven speed changes, and the spindle speeds range from 560 down to 50. Various minor modifications of the regular equipment can be made to order. As there is so much spindle work in an automobile, in fact, every shaft in the machine is of comparatively small diameter, an investigation of the lathe would prove profitable to the engineering department. The makers have produced an excellent and well-written treatise on the machine, which they will doubtless be glad to send to serious inquirers.

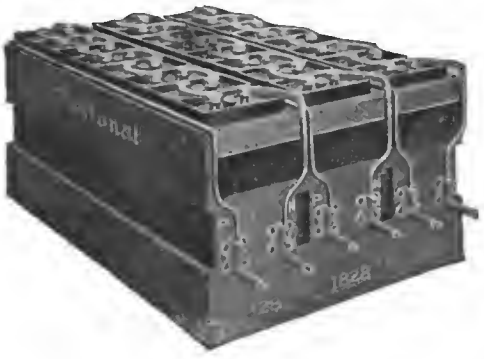
LO-SWING SPECIAL LATHE.

BULLARD PIPE WRENCH.—The convenience, not to say necessity, of having about the garage or in the tool box of the automobile a wrench that will firmly grip a pipe or other round object seems to be duly recognized by the Bullard Automatic Wrench Co., of Providence, R. I., whose wrench is illustrated herewith. The wrench is applied to the object to be gripped in such a way that the pressure applied will tend to close up the jaws; thus the heavier the pressure necessary to turn the pipe, for instance, the tighter the wrench will hold; an inspection of the illustration will make the reason clear. The Bullard wrench is made in four sizes, the smallest holding from 0 to 3-4 inch, and the largest from 3-4 inch to 3 inches; the jaw on the pivoted member is removable and can be replaced at small expense.



BULLARD AUTOMATIC WRENCH.

NATIONAL AUTOMOBILE BATTERIES.—Storage batteries of the pasted type have been adopted by the National Battery Company, of Buffalo, N. Y., for automobile work, both for propelling electric cars and for ignition work in gasoline machines. The positive grid is of the form known as staggered; it has a large conducting surface, giving high voltage and low internal resistance, and allowing a high rate of discharge without damage. The negative grid is of the type known as "corrugated, punched and clinched"; the coatings of active material on the two sides of the plate are held together securely by the peculiar construction. The rubber jars used with National automobile batteries, and, in fact, with all types of National batteries, have soft rubber strips to carry the weight of the plates in the bottom of the jar, thus reducing the danger of injury to the plate from vibration. The ignition batteries, called "National Sparkers," are assembled in rubber jars with rubber covers, the whole being enclosed in a hard-wood or metal box. The lugs and vent pipes pass through the cover and are sealed with an acid-proof substance, which is melted and poured around the joint. The brass thumbscrews and nuts are covered with a thick coating of lead to prevent corrosion.



NATIONAL AUTOMOBILE BATTERY.

RAILROAD INSPECTION CARS.—The peculiar advantages of the explosion motor for the propulsion of railroad inspection and other small cars has induced Fairbanks, Morse & Co., of Chicago, Ill., to manufacture an extensive line of such machines. The great power in proportion to weight, the ease with which fuel for long distances may be carried, the small amount of attention required in operation and the extreme quickness with which such a car may be got under way are all advantages that have been recognized by railroad men, and a great many such machines are now in constant use on railroads in many parts of the world. Inspection cars are made in various styles, from a small machine similar to the well-known railroad "speeder" with seats for two persons, to the comparatively elaborate covered and side-curtained car with cross seats seating nine or ten people. The manufacturers state that early in the past summer the chief engineer of the Michigan Central Railroad made an inspection trip over the system, covering a total distance of 4,347 miles on a total gasoline consumption of 231 gallons, an average of 19.7 miles per gallon. The operating expenses, exclusive of the wages of the man running the car, averaged nine-tenths of a cent a mile. At one time a distance of 39 miles was covered at the rate of 52 miles an hour. The car used was of the style known to the manufacturers as No. 16, and has a two-cylinder motor developing 12 horsepower. The framing is of riveted steel. The car is regularly equipped with canopy top, glass front and leather upholstered seats. The rear seats can be removed, making the car available for carrying freight.

INDEX TO ADVERTISERS

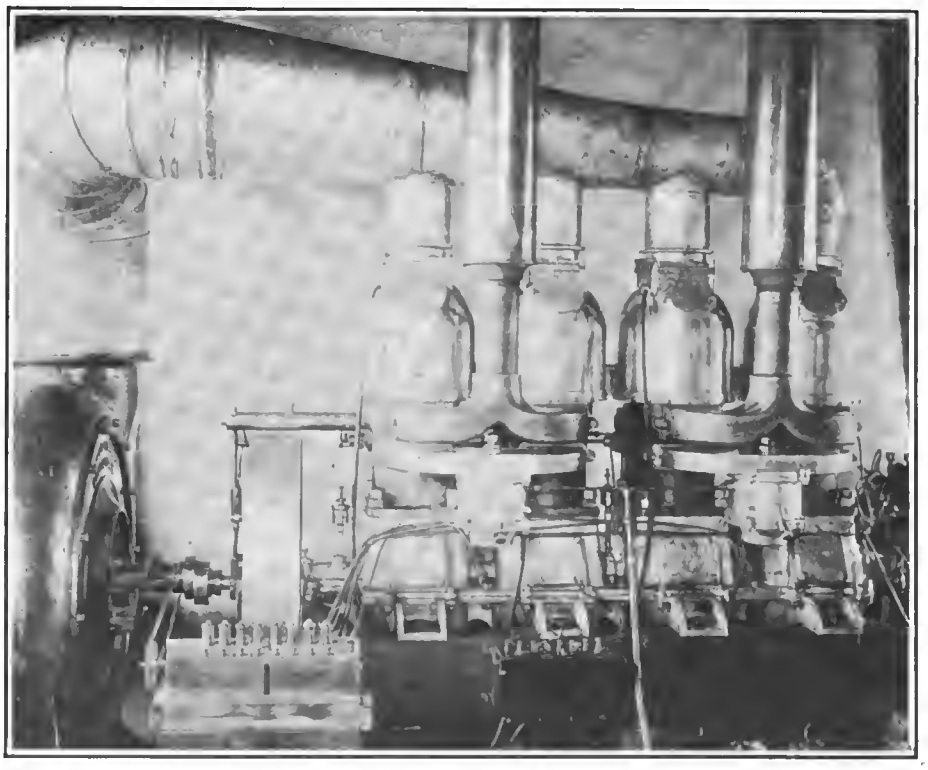
THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, DECEMBER 7, 1905—CHICAGO No. 23

A 100-H.P. TWO-CYCLE AIR-COOLED MOTOR.

AN extremely interesting phase of the development of the explosion motor in its commercial form is in its adaptation to the propulsion of railroad cars; to this considerable attention is being given, both in this country and abroad, and the results, so far, are encouraging. The motors used for this work have, as a rule, been of practically the same type as large marine and automobile motors, with minor changes to adapt them to the new class of work. A motor recently completed for a western railroad, however, differs radically from others used for the same work, and combines a number of features which, in view of the conditions, are novel.

In the first place, the motor is very large, having cylinders 8 inches in diameter and 8 inches piston stroke; and these dimensions are the more notable in view of the fact that the motor is of the two-cycle type and is air-cooled by convection. The motor is rated at 100 horsepower, and is, we believe, the largest air-cooled two-cycle motor that has been built, at least in this country. A further peculiarity, and one that is new in explosion motor practice, is that the speed is regulated by a flywheel inertia governor working on an oscillating throttle—a governor that has been in use for a long time in high-speed steam engine practice under the name of the Rites governor. The motor was designed and built by E. W. Roberts, M.E., of Clyde, O., for a western railroad, and will drive a dynamo which will charge a storage battery, the battery supplying current to electric motors on the car axles.



TWO-CYCLE AIR-COOLED MOTOR WITH 8x8-IN. CYLINDERS AND BLOWER.

By making use of the three port system moving inlet and exhaust valves are entirely dispensed with, the admission of combustible gas and the escape of the exhaust taking place through ports in the cylinder walls, alternately covered and uncovered by the piston in its stroke. This system is in successful use in nearly all two-cycle marine motors and has been adopted by those automobile manufacturers who equip their cars with two-cycle motors.

In order to easily understand the working of the three port two-cycle motor, the operations may be followed step by step. Suppose the engine to be at rest, with the piston at the bottom of its stroke. If the crankshaft is rotated by hand, as is usual in starting an explosion motor, the piston will of course rise; as yet there is no communication between the interior of the crankcase and the atmosphere, so a partial vacuum is formed, the degree of vacuum depending upon the displacement of the piston with relation to the capacity of the crankcase, disregarding leakage. When the piston travels the last sixth (approximately) of its upward stroke it uncovers a port in the cylinder wall which communicates with the gas inlet pipe from the carbureter and a charge of gas is forced into the crankcase by atmospheric pressure.

Meantime, as there is no explosive charge in the cylinder, the cycle of operations must be completed by hand; for it is readily understood that a gas engine does not automatically take up and carry on its cycle of operations until an explosion has taken place, sufficient in intensity to rotate the crankshaft independently of outside aid. Therefore the piston must be returned to the outward end of its stroke by means of the hand crank, as would be the case in any ordinary four-cycle motor. As the piston descends, it first covers the port through which the combustible gas entered the crankcase; the gas is thus confined, with no means of outlet, ignoring possible leaks. The continued downward movement of the

piston compresses the gas in the crankcase, and the compression is continued until about the last sixth of the downward stroke when two ports are uncovered by the piston above the piston head.; one is the exhaust port, communicating with the atmosphere through the exhaust pipe, and the other, called the "transfer port," communicates with a passage leading from the crankcase. The exhaust port is uncovered a trifle earlier than the other for a reason that will presently appear.

Communication having been established between the cylinder, above the piston, and the crankcase, the gas in the crankcase passes into the cylinder with a velocity dependent upon the difference between its pressure and that of the air in the cylinder; the air in the cylinder is displaced by the incoming gas and escapes through the exhaust port, leaving the cylinder charged with explosive gas at approximately atmospheric pressure. Cranking being continued (it being borne in mind that we are now starting the motor), the piston commences to ascend, covering both the transfer port and the exhaust port, the latter remaining open a little longer than the other. These two ports closed, the gas in the cylinder is compressed by the movement of the piston until the upward limit of the stroke is reached and the charge is under compression at maximum pressure, when ignition takes place. Meanwhile a fresh charge has been drawn from the crankcase and is compressed as the piston is driven outward by the explosion of the gas which has just been ignited in the cylinder. The exhaust port, opening earlier than the transfer port, permits a portion of the burned gases to escape before the transfer port is uncovered, so that the pressure in the cylinder will not be greater than that of the fresh charge. The transfer port is uncovered and the fresh charge is transferred into the cylinder just as it was when the crank was turned by hand, the only difference being that instead of displacing air, the combustible gas displaces the burned charge. The fact that as the piston ascends the exhaust port remains open after the transfer port has been covered, gives the spent gas more time to get clear of the cylinder. These operations are repeated at every revolution of the crankshaft or every two strokes of the piston, from which fact comes the term two-cycle, an abbreviation of "two-stroke cycle."

Cooling is effected by convection, a forced current of air being delivered by a Buffalo blower into aluminum jackets surrounding the cylinders. The jackets do not encircle the cylinders in the ordinary way, but form helical passages around the cylinders, so that the actual mass of air is brought into direct contact with the heated surface. The blower is driven direct from the crankshaft through a flexible coupling, and is capable of delivering 3,000 cubic feet of air per minute at 750 R. P. M., this being the normal speed of the engine. The heated air, escaping from the jackets, passes out through a large sheet metal pipe which, when the motor is installed in the car, will be carried through the floor.

The speed of the engine is controlled by an automatic governor acting on the throttle, the latter being placed in the bronze passage between the crankcase and the cylinder transfer port. The governor is well known to steam engineers under the name of the Rites governor, and is of a type in which centrifugal force and inertia are employed. The governor weight, attached to the flywheel and held normally in full throttle position by a spring, is adapted to shift an eccentric on the crankshaft from full throw on one side of the shaft to full throw on the opposite side, the throw decreasing as the eccentric approaches the centre until, in mid-position, there is no throw. The eccentric rocks the throttle valve through a rod, the valve rocking at each stroke. The governor takes advantage of the fact that the charge is admitted to the cylinder during a very brief period only in the stroke; if the throttle is open during this period, it makes no difference whether it is open or closed during the remainder of the stroke.

Suppose the engine is just starting, the governor being in the wide open position with the eccentric on the full throttle side of the shaft. The throttle will be rocked so that it will be wide open at the instant the charge of gas is passing from the crankcase to the cylinder. As the engine picks up speed the eccentric approaches the centre under the influence of the governor weight, the throw decreases and the amount of throttle opening decreases, of course, in the same ratio, until, when the eccentric is on the center and imparts no motion to the throttle, the latter stands half open. If the speed of the engine continues to increase, the eccentric commences to swing toward the opposite side. The rocking throttle now contracts the gas opening more and more, until, when full throw is reached, the throttle is closed when the transfer port is open and opens at the top of the stroke, which, of course, counts for nothing, as the transfer port is covered by the piston.

There are two throttle valves, one for each pair of cylinders, and the same eccentric is made to operate both throttles by using two sets of rockers, one for each valve. Two carbureters are used, one for each pair of cylinders, working automatically by the varying degrees of vacuum produced at different engine speeds. The carbureters were especially designed for this motor, and are of aluminum; the same material is used for the gas supply manifolds, which are of rectangular section and give a wide, free passage.

A special cast steel is used for the cylinders with a view to securing lightness without sacrificing strength. Notwithstanding the size of the motor, the cylinder walls are only 5-16 of an inch thick. Large hand openings are left in the cylinder heads and are closed by flanged plates. Pistons are of iron, very long, and have four packing rings above the piston pin and a series of oil grooves cut near the bottom. The connecting rods are of the same cast steel as is used for the cylinders; the piston pin bearing is split and fitted with an adjusting screw, while the big end bearing is in halves, hinged.

Crankshaft, crankpins and bearings are very large; counterweights are attached to the cranks to balance the weight of the reciprocating parts. The cranks of the two forward cylinders are set at 180 degrees with each other, as are the cranks of the two rear cylinders; the forward pair, however, are at 90 degrees, or right angles, to the rear pair. The result of this crank arrangement is that the crankshaft receives a power impulse every quarter of a revolution; if the cranks were all at 180 degrees, there would be two simultaneous explosions in each half revolution.

The crankcase is cast of aluminum alloy and is divided horizontally. Each crank works in its own compartment, and in order to keep the compartments as nearly airtight as possible, and to prevent the leakage of the compressed gas from one to the other, packing rings are placed on the journals between the compartments.

Ignition is by jump spark, the timer, at the end opposite the flywheel, being driven at the same speed as the crankshaft by a silent chain. A bracket, bolted to the crankcase directly over the crankshaft, carries the timer and the timer sprocket. A quadruple coil is used.

A mechanical force feed lubricator supplies oil to the cylinders and to the crank pins. A positive lubrication system is found necessary for the crankpins, as in such a large motor the rush of gas through the crankcase carries off the lubricating oil very rapidly.

The motor, when installed in its car, will be direct coupled to a 75 kilowatt shunt wound dynamo, which will be driven at a speed of 750 revolutions a minute. The current from the dynamo will be used to charge a storage battery, from which four axle motors, of 50 horsepower each, will take current. By connecting the dynamo direct to the motors and using the storage battery at the same time, the full capacity of the electric motors can be made available for short runs. The engine and dynamo will occupy a space equal to that occupied by eight passengers; the seating capacity of the car will be 56 passengers. It is expected that the car will be in operation within a few weeks, when it will be placed in service on the line of a western road.

She knew something of the condition a man gets into when he runs his own automobile, and particularly of the oil and dust that covers his hands and clothes. So when her husband announced that he had just bought a car of his own, she remarked, with a sigh: "Now I suppose it will be a case of oily to bed and oily to rise."—Augusta (Ga.) *Chronicle.*

Light Cars at the London Shows.

From Our Own Correspondent.

LONDON, Nov. 22.—The French and other Continental manufacturers seem to have devoted their entire attention, up to the present, to catering for the automobile needs and requirements of the upper classes alone, and apparently have not, to any extent, supplied the wants of the middle classes—which will certainly be the largest users of automobiles in the near future. On the other hand, the British manufacturer has always studied the "man of moderate means," and in consequence the British light car has been brought to a state of perfection that probably surpasses the corresponding productions of Continental manufacturers. At the present London shows British cars of high powers are on view which are quite equal to any foreign car, but it is in the cars of lower powers and lower prices that the advance is more particularly evident.

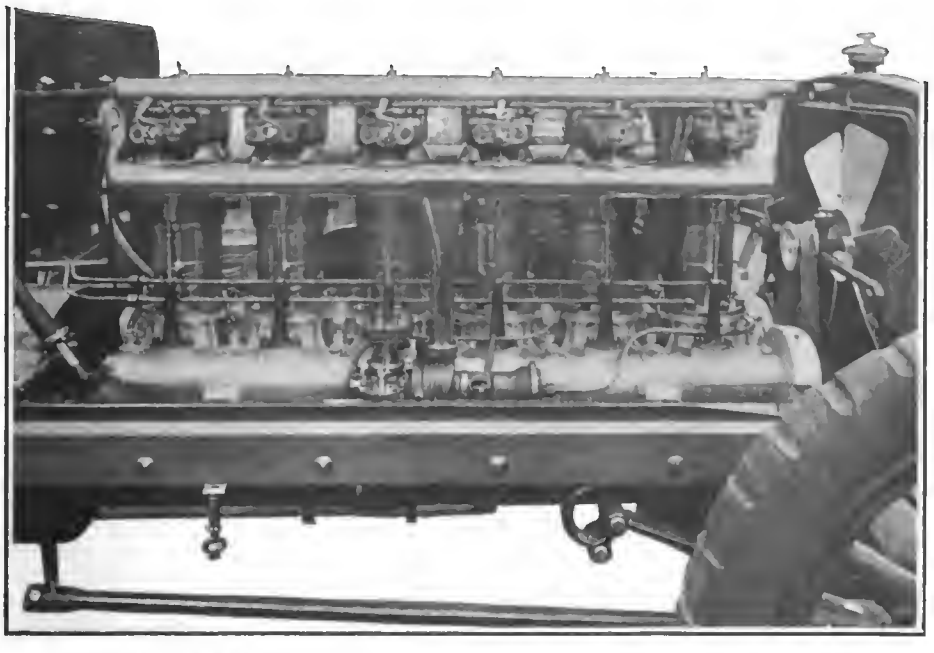
The sudden jump of the tricar into popularity has somewhat retarded the development of the lightest class of runabout, and until the present shows there was very little to choose between the $500 tricar and the $800 two-seated car of proved worth and reliability. Now there is a complete and unbroken range from the tricar to the 60-horsepower multicylinder machine of the millionaire.

A Choice of Runabouts.

Starting at the lower limit, a choice could be made from half a dozen voiturettes priced at $500 to $600. These are, in most cases, of the two-seated type and, except for detail work and fine finish, are merely smaller editions of higher-powered cars. The power ranges from 6 to 8 horsepower with one or two cylinders, although the one-cylinder model may reasonably be expected to be the better value. Armored wood frames with flitch plates are used in several cases, but the tubular type quite fulfills the requirements for these low powers.

Vertical engines are generally adopted, the advantages possessed by the horizontal type for such low powers being ignored for some unknown reason. The engine is placed under the bonnet in front and drives through a Panhard type gear box with three speeds and reverse, the final transmission being effected by either live axle or side chains, while in some cases a single chain is used. It is rather surprising that the early De Dion style of construction, with engine at rear axle and geared directly, does not find favor with manufacturers, for the early 4 1-2-horsepower models of this make could accomplish performances of which the modern 6 or 8 horsepower car would generally be incapable. Public opinion is usually responsible in such cases; the public considers the engine-at-rear type out of date, and this objection entirely overrules all theoretical advantages.

These cheap cars run successfully, but when, as is often the case, a tonneau is added, it is not surprising that the machine proves underpowered and the change-speed gear has its life shortened. As price rises the same type of car is offered, but with detail improvement and better finish. At the $850 price there is a good selection of two-seaters, and it is interesting to note that two of the principal cars of this price—the 6-horsepower Wolseley and the 7-horsepower, two-cylinder Star—are substantially the same for the coming season as they were two years ago. Such a fact is a good guarantee of quality and sound design; finality has apparently been reached in this type, for with low powers such as these there would be no advantage in multiplication of cylinders.



INLET SIDE OF SIX-CYLINDER PANHARD ENGINE, EXHIBITED AT OLYMPIA SHOW.

Where American Cars Come In.

Above this price foreign cars begin to make an appearance. French Darracqs and American Oldsmobiles, Pope-Tribunes, Cadillacs and others cause competition, and from $1,000 to $1,500 there is a fine selection of cars. Two-seaters are replaced by tonneau bodies, and the fashion for side-entrance *carosserie* has led to the introduction of the tonneau with entrance through the front seat, which is pivoted and turns out of the way. This style has been extensively adopted for 1906 models and gives the increased space of a side-entrance body without lengthening the wheelbase.

Two-cylinder engines of 10 to 12 horsepower are popular, but the four-cylinder type is coming rapidly into favor. The new 10-14-horsepower Renault has been described as the smallest four-cylinder car yet built, but over here one of the most successful light cars during the past year has been an 8-10-horsepower, four-cylinder model, while there are half a dozen 1906 models of less than 12 horsepower with four cylinders. Perhaps the two most representative of these are the 10-horsepower Star and the 10-12-horsepower Humber.

Representative English Light Car.

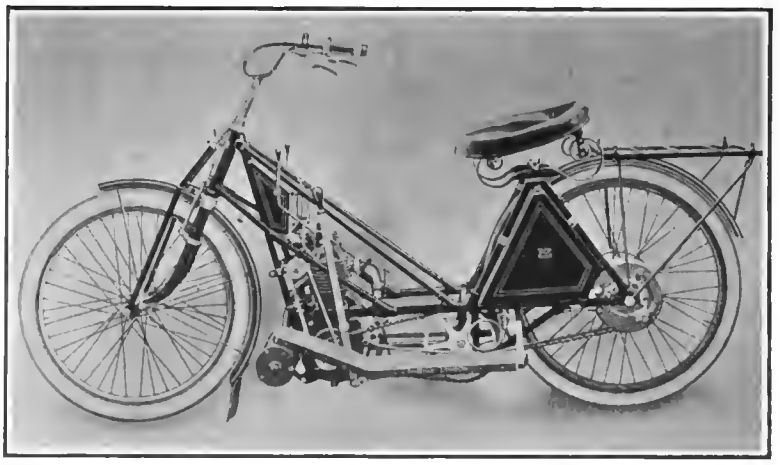
This last has replaced the 8-10-horsepower car above mentioned and is an extremely interesting machine, although built on standard lines. The Humber company's long bicycle experience has led it to retain the tubular construction for the frame, and, although opposed to general practice, there seems no objection to this. The engine has four cylinders set vertically; bore 90 mm. and stroke 95 mm., running normally at 1,000 revolutions per minute. Power is transmitted through a leather-lined, aluminum clutch to the change speed of the sliding gear type giving the usual three speeds and reverse, with direct drive on high speed. The live axle is driven by cardan shaft. The road wheels are fitted with ball bearings, as are also the gear shafts. The general workmanship is very good and the comfort of the driver has been well studied by giving a big rake to the steering column and placing the control levers on the wheel. Double-acting foot brakes are fitted to the driving shaft and hand brakes on the road wheels, actuated by hand lever. With entrance through swinging front seat this car is listed at $1,400, and the 10-horsepower Star car, which is very similar in general construction, but having armored wood frame and chain drive, sells at $1,300.

This class of four-cylinder car is extremely popular with British motorists and most manufacturers tend to this power for one of their models. It is interesting to note that there is nothing of foreign make

on the British market of this type at the same figure; the usual French four-cylinder is 15 horsepower and costs $600 to $700 more. It must be remembered that the British cars mentioned are light cars, and weigh usually about 1500 pounds.

With the next $500 rise in price a big selection of French and American cars is offered, but not till the $2,200 mark is passed is the approach to the medium-powered cars reached; up to this price there are, in general, modifications and detail improvements of the aforesaid four-cylinder cars, though there are several exceptions, among which a notable case seems to occur in the 8-11-horsepower Panhard three-cylinder model, which is down considerably in price and now comes within this class. The 16-20-horsepower car is very popular and no doubt if a detailed census were made it would be found that this power predominates. It is notable that at Olympia two new models of this class were to be seen on stands of makers who have hitherto been of the high-powered class only—the Fiat and the De Dietrich cars of 12-15 horsepower, which, no doubt, actually are about 16-20 horsepower. The English Daimler company, too, has priced its new 28-horsepower model at only slightly above this figure. Above this power the domain of the high-powered car is reached and an infinite variety of Continental models invite attention.

In all these various classes there are, of course, numbers of particular examples to which it is impossible to refer in detail; no doubt enough has been said to show that the general tendency is toward lower powers, the average British manufacturer being content to leave it to the French and two or three British firms of note to cater to the demand for high-powered machines.



PHOENIX MOTOR BICYCLE FOR WOMEN, EXHIBITED AT STANLEY SHOW.

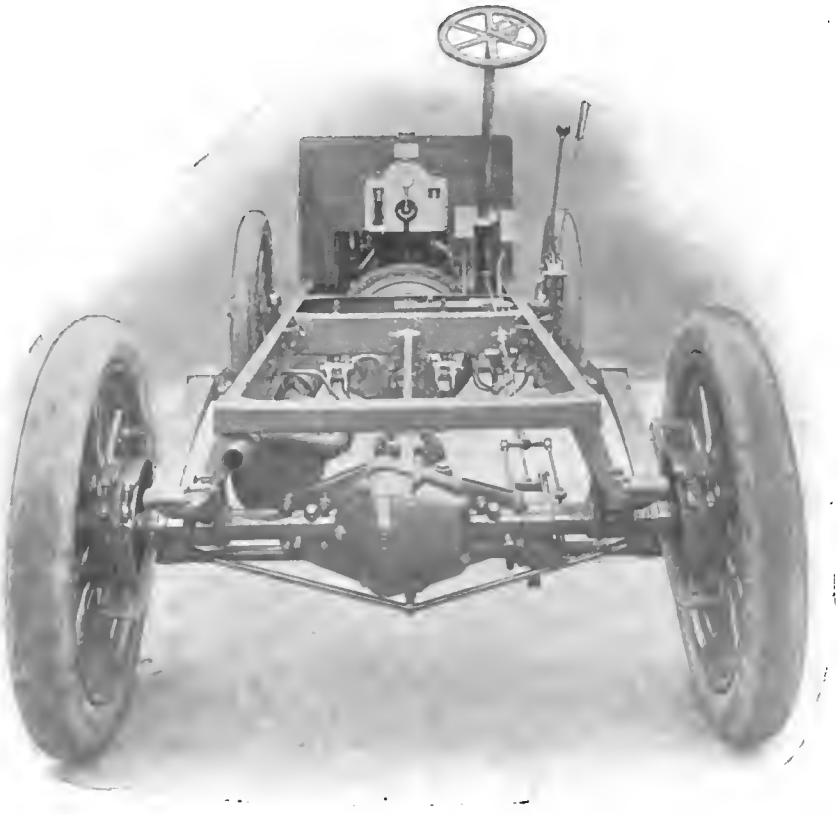
Motorcycles and Tri-Cars at the Stanley Show.

LONDON, Nov. 25.—This oldest established London cycle show, with twenty-nine years to its credit, has been much overshadowed by the Olympia exhibition, which has run concurrently for the past week, but nevertheless the Stanley show is of interest to automobilists as showing the progress made in the construction of motorcycles and the lighter and lower-powered classes of cars. The British motorcycle industry has developed to a great extent, and the number of motorcycles in use easily surpass that in France. From the early 1 1-2-horsepower, motor-assisted push-bicycles of 1902 the power increased until at the last show 3 1-2 horsepower was the popular rating. This year the two-cylinder engine of 4-5 horsepower is likely to become generally used, and numbers of machines of this class were displayed.

In spite of this tendency towards high powers, there is a strong feeling on the part of many motorcyclists—especially those old pedal cyclists, who have abandoned physical exertion for something easier—for a moderate-powered machine, and alongside the new two-cylindered "monsters" (which expression is quite justifiable in many cases) was generally staged a 2 3-4 or 3-horsepower machine, fitted often with an epicyclic, two-speed gear in the rear hub and belt driven. These smaller machines weigh about 120 to 160 pounds when ready for the road, compared with 200 to 250 pounds scaled by the two-cylinder mounts.

With regard to the latter, the engine is usually fixed at the bottom bracket with the cylinders set at an angle of 45 degrees to each other and, of course, lengthwise in the frame. This method has the objection that the rear cylinder gets rather hot, owing to the front cylinder receiving most of the air currents, and also that the oil is apt to be thrown up by the flywheels and accumulate in the rear cylinder. To overcome these difficulties several models have the cylinders at right angles, one horizontal and the rear cylinder vertical, while the English Roc and the French Werner have two small vertical cylinders side by side, set transversely across the frame.

The F. N. motorcycle, a popular Belgian production, has four small cylinders, developing about 1 horsepower each, set vertically and arranged tandem, driving by propeller shaft and bevel gearing. This engine gives very smooth running, but is open to the objection that the rear cylinders are liable to overheat. Most of the motorcycles on exhibition retain the pedaling gear for



CHASSIS OF IRIS (ENGLISH) TOURING CAR DISPLAYED AT OLYMPIA SHOW.

ease of starting, although spring footrests are sometimes fitted. Increased attention is being paid to the comfort of the rider, and many spring devices are shown, generally for providing a flexible connection between the front forks and the front wheel.

Ignition by storage battery and coil is more general than by magneto, although the magneto is rapidly advancing in popularity. Float-feed spray carbureters are universal; the old surface type is now extinct. As regards price, there has been a big slump in motorcycles at this show, just as the last Stanley show caused confusion in the bicycle trade by the unexpected drop in prices made by several large manufacturers. Last year the usual price for a 3 or 3 1-2-horsepower motor bicycle by a good maker was $180 to $200, but now in many cases the same value (apparently, if not actually,) can be obtained for $130 to $150—less than the price of some highest-grade pedal bicycles. The multi-cylinder models are priced at about $230.

Coming to motorcycles for two or more persons, the 'tricar" still retains public favor, but now it has changed from the glorified tricycle to the miniature car. Except for the absence of the rear axle and its replacement by a single wheel, there are all the refinements of a big car on some of the new models. Two-cylinder engine of 6—8 horsepower; water cooled with radiator and forced circulation; frame carried on carriage springs; wheel steering; clutch and gear box—all these are now demanded by the motorcyclist who wishes to have company on his rides. And certainly these handy little vehicles have proved very efficient and reliable in the recent contests promoted for passenger vehicles by the Auto Cycle Club. In ease of control, low fuel and tire cost, light weight and consequent hill-climbing powers, the tricar surpasses the runabout. The main disadvantage is, of course, the fact that the driver sits behind the passenger; but in some of the latest models the front seat will accommodate two passengers, and so increase the sociability.

There are some who still retain affection for the older type, and for these are provided lighter models with air-cooled engines, of 4-5 horsepower, and probably belt drive with two-speed gear. Nothing less than three speeds is usual on the big tricars, while a reverse is necessitated by the weight, which generally exceeds five hundredweights, bringing the machine under the motor-car regulations. The price of the larger tricars ranges from $400 to $500, and about $375 is asked for the lighter models.

In conclusion, while not exhibiting any radical alterations in design or construction, the show indicates a general advance in quality and workmanship, and the reduction in prices (which can hardly be expected to drop below their present level for some time to come) now places the sport of motorcycling within easy reach of all, so that a big further increase in numbers may be confidently expected during the coming season.

Figures on Source of Gasoline Supply.

THOSE who are interested in questions relating to the world's output of petroleum, will find an invaluable fund of information, chiefly statistical, in a special publication of the United States Geological Survey on the subject, just issued. The work is, of course, based upon official returns, and while, from its exhaustive nature, it is not strictly up-to or rather down-to-date, it is the latest and most authoritative work on the subject. Though the work has not been prepared for the special information of any particular industry, there are some facts and figures throughout that are of special interest to the automobile manufacturer and user, not only for present interest, but for future reference.

Totals covering the world's production of petroleum show that the output is steadily increasing in quantity year by year. In the year 1904 the United States led all other countries with a total of 117,063, 421 barrels (42 U. S. gallons) of crude petroleum out of a grand total for all countries of 219,162,501 barrels, or just 53.42 per cent. Russia, next on the list, contributed a total of 78,500,905, or 35.82 per cent. of the total output. All other countries collectively gave an output of the remaining 23,598,175 barrels.

These figures refer to quantity only. In quality, the greater proportion of crude petroleum produced in the United States is superior to any other in the percentage of valuable products secured by distillation—including, of course, gasoline.

Refined Products of Petroleum.

Approximate figures for the production of refined products of petroleum, which include the higher hydrocarbons such as gasoline and naptha, illuminating and lubricating oils, the United States gave a grand total of 2,212,498,656 gallons for the year 1904. In the same period the total for Russia was 565,407,602 gallons, while the rest of the world contributed only 247,700,840 gallons—significant figures.

An interesting resume of comparative tests of fuel values employing the ordinary mechanical apparatus for the translation of the energy stored in the fuel into brake horsepower is included. The comparisons, records of which follow, are on the basis of a weight of fuel of 310 pounds, which is equal to one barrel of ordinary crude petroleum, and the assumption that one pound of this fuel will evaporate fifteen pounds of water. For the steam engine one brake horsepower is assumed for every sixteen pounds of water evaporated. The results of the test show:

Comparative Values of Fuels.

High duty steam engines using best lump coal under boiler, 310 pounds = 190 brake horsepower hours.

High duty steam engines using petroleum under boilers, 310 pounds (1 barrel) = 291 brake horsepower hours.

Internal combustion engines using crude petroleum, 310 pounds (1 barrel) = 424 brake horsepower hours.

Diesel internal combustion engines using crude petroleum, 310 pounds (1 barrel) = 517 brake horsepower hours.

Automobile internal combustion engines using 70 ° B. naphtha, 310 pounds (1.4 barrels) = 530 brake horsepower hours.

Natural gas high duty internal combustion engines, 10 cubic feet per horsepower, 310 pound (6,800) cubic feet = 680 brake horsepower hours.

Comparing the results of the power derived from coal, petroleum and its products, and natural gas by the different methods of energy conversion under the conditions stated, and considering coal as 1, the following ratios are found: Petroleum under boilers, 1.53; petroleum in internal combustion motors, 2.23; petroleum in the Diesel motor, 2.72. Naphtha, 70° B., in automobile type motor, 2.79; natural gas in internal combustion engine, 3.58.

It will be noticed that mechanical or chemical efficiencies are here considered and that the serious commercial considerations of cost are omitted. Such considerations are possibly outside the functions of the book, but their inclusion would have added greatly to the practical value of the comparisons recorded.

Oil in Road Making.

Touching on the important use of crude oil in road making, a subject in which automobilists are especially interested, it is stated that California was the first to introduce the system. This has lately caused a demand for heavy natural asphalt petroleum and for the manufactured article. Oiling is particularly well adapted to a country where the roadbed is dusty or sandy. Its efficiency depends upon cementing the top of the road into a compact and stony covering, thus preventing the dust in a dry season and mud in a wet season. Numerous trials have proved its benefit and durability, although retouching is necessary, as local defects may develop. With petroleum selling at $1.25 to $1.50 per barrel, a 12-foot roadway can be constructed under ordinary conditions at an outlay of from $250 to $600 per mile.

After an exhaustive discussion, in which many delegates advocated drastic action, the annual convention of the National Grange, Patrons of Husbandry, at Atlantic City last week decided that the farmers should join in securing uniform automobile legislation of an equitable nature and to see that the laws were vigorously and relentlessly enforced. The penalties, it was agreed, should be heavy enough to serve as a deterrent against violation by others. The grange recognized that the automobile is an innovation in methods of travel that must be accepted.

Short Runs in and About Washington, D. C.

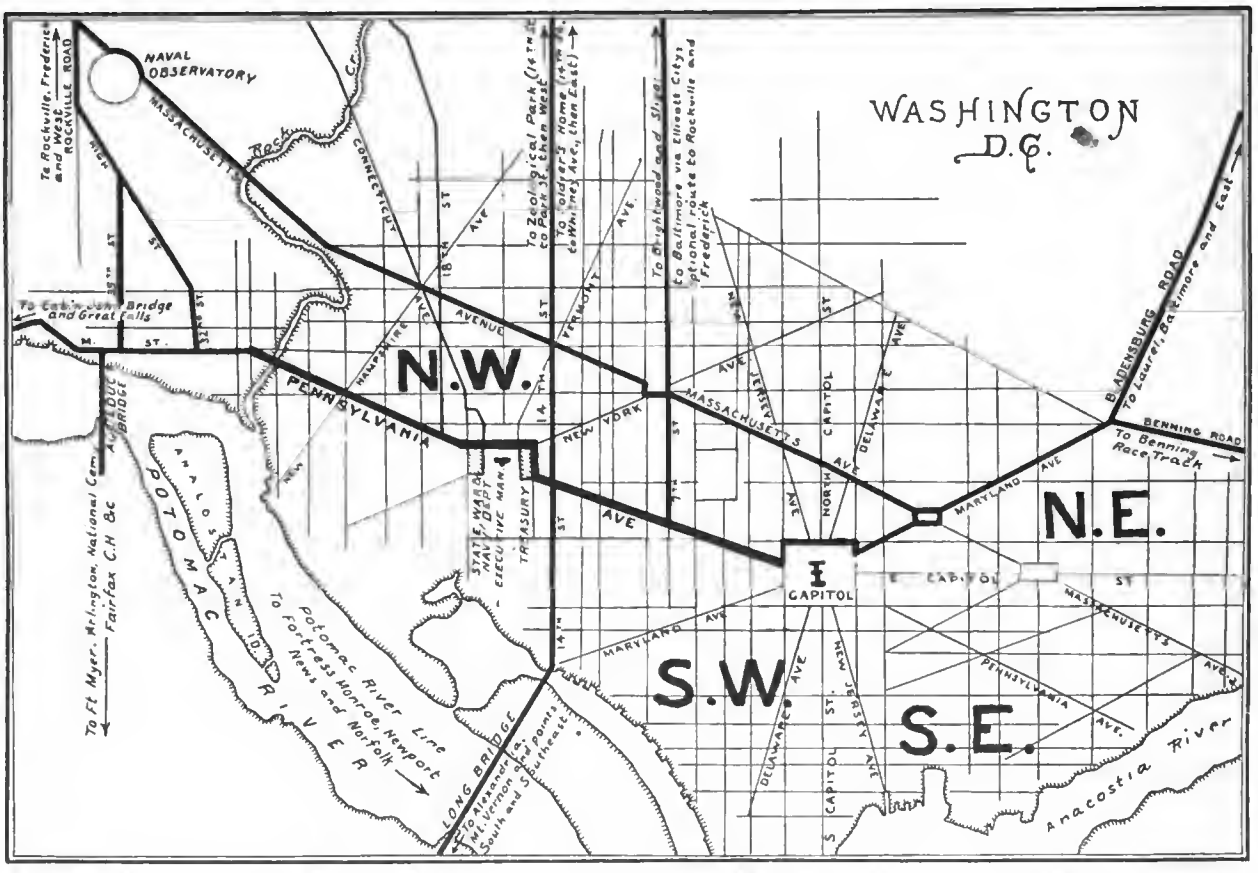
By ROBERT BRUCE.

WASHINGTON and its environs are, for all practical purposes, coextensive with the District of Columbia, though not exactly so. The city is divided into four sub-districts: Northwest, Southwest, Southeast and Northeast, all radiating from the capitol as a center. The dividing lines are North Capitol street, East Capitol, South Capitol and a line drawn west through the "Mall." Each sub-district—commonly abbreviated to N. W., S. W., S. E. and N. E.—has its own series of streets, with letters and numbers beginning at the capitol.

All thoroughfares are either numbered or lettered. Numbered streets run north and south, beginning with First street, at the foot of Capitol Hill, while lettered streets run east and west, beginning with B street, at the Mall. The avenues extend northeast to southwest and northwest to southeast. House numbers run from the capitol (odd numbers on the right) and in progression of 100 numbers to a block. From any point within the city limits the autoist is within a short distance of some prominent thoroughfare. In the north and west sections almost every street and avenue is asphalted; elsewhere macadam or some smooth block pavement is usually found.

The accompanying map will show the principal riding directions, within the city limits, toward the principal important points in and about the District of Columbia. A glance at this diagram will give, better than much description could, the idea of how to start on the various suburban trips, as well as on the longer tours, of which these might properly be called the initial stems. The principal through routes in all directions also coincide with the tracings on the map, so far as the diagram extends. Pennsylvania avenue, nearly five miles long, is not only the central thoroughfare, but it is the base from which all automobile tours in and out of Washington are reckoned.

Of the many local runs about the National Capitol, the most interesting to strangers are those to Cabin John Bridge and Great Falls, Arlington National Cemetery and Mt. Vernon. These will take one outside the city, though runs to the National Zoölogical Park, Rock Creek Park and the Soldiers' Home grounds are wholly or in part within the city limits. Strangers visiting Washington will have no difficulty in making any of these runs from the map, and the directions given under different subheads, in the following paragraphs:



WASHINGTON, D. C., SHOWING MAIN AVENUES TO PRINCIPAL POINTS OF INTEREST IN AND AROUND THE NATIONAL CAPITAL.

ZOOLOGICAL PARK AND SOLDIERS' HOME.

A short excursion, almost entirely within the Washington city limits—a trip which may take two hours or a whole day, according to the visitor's time and inclination—is that here briefly outlined. Each may be reached separately, in a dozen different ways, but this grouping will probably be found convenient by the locally unacquainted tourist. The National Zoölogical Park and the Rock Creek Park are two of the finest examples of landscape gardening on a big scale in the United States. The Rock Creek Road, which runs through both parks, beside the creek, is a splendid example of good road making, and, as it follows the creek, it has no grade except that of the running water, although a hill or so intervene between the city and the parks.

The best way is to start north on Fourteenth street, which crosses Pennsylvania avenue only one block east of the Executive grounds and the United States Treasury. New York avenue, Massachusetts avenue, Vermont avenue, Rhode Island avenue and other much-traveled thoroughfares cross Fourteenth street within two miles of Pennsylvania avenue. Go north on Fourteenth street to end of car line at Park street, then bear left (west) into Park street, which follow to Seventeenth street, keep straight ahead, downhill, making sharp right turn half way diwn; then cross bridge and bear right.

This is the Rock Creek Road, which winds in and out for five miles amidst the most beautiful kind of natural and artificial gardening. The road forks at the Military road; bear right to go to Brightwood and left for Chevy Chase. Brightwood, distant from the fork a mile and a half, is on the

NATIONAL SOLDIERS' HOME, OUT SEVENTH STREET AND WHITNEY AVENUE.

Seventh street pike; bear right into Seventh street for the city and left for Takoma Park, Silver Springs and Olney.

The Seventh street pike is a beautiful road in fine condition for its whole length and is a favorite speeding ground for motorists. Bearing right into Seventh street, turn left at Whitney avenue to the Soldiers' Home, which gives more parking and beautiful roads. At Brightwood, where the Military road runs into the Seventh street road, is a third fork, the Blagden's Mill road, which, although hilly, is good, and takes the autoist back to Fourteenth and Park streets.

There are any number of ways of getting into the Zoo and the Rock Creek Park; in fact, these parks and the surrounding suburbs are connected by a complicated network of fine roads, but as the intervening distances are short and travelers numerous, it is not difficult to find the way. A route to the Zoo used by some is Eighteenth street—parallel with Fourteenth street except that Eighteenth street makes an irregular left bend at its upper end to enter the lower edge of the park. Or Connecticut avenue, taken in a northwesterly direction from the Lafayette Square, opposite the Executive Mansion, thence an irregular left bend out Connecticut avenue extension, will take the tourist to the western edge of the park.

To Cabin John Bridge via Conduit Road.

The map will show at a glance how easily "M" street may be reached from almost any quarter of the city. One of the central east-and-west thoroughfares, this street might almost be said to divide Washington into halves. Crossed by the principal streets and avenues, it has many good city connections. Strangers, knowing principally Pennsylvania avenue, the great thoroughfare between the National Capitol and the Executive Mansion, have a nearly direct and simple course.

Going west on Pennsylvania avenue, bear right on Fifteenth street, where the way ahead is cut off by the United States Treasury. Go north two short blocks on Fifteenth street, alongside the Treasury; then turn square left on Pennsylvania avenue to pass between the Executive Mansion on the left and Lafayette Square on the right. At the farther corner of the State War Navy Building Pennsylvania avenue resumes a slight diagonal to the right and, immediately after crossing Rock Creek bridge, intersects "M" street at Twenty-eighth street.

From Washington's "uptown" the "N. W." section, all north and south streets and the principal avenues—Vermont, New Hampshire and Rhode Island—have simply to be followed to their intersection with "M" street. The latter, followed west from any point, will take the tourist out of Washington, by way of Rock Creek bridge into Georgetown, and through lower Georgetown to Thirty-sixth street. Here the Conduit Road begins, the point being conveniently marked also by the Aqueduct Bridge, a continuation (south) of Thirty-sixth street.

Do not turn down to this bridge, but go straight west into the Conduit Road. Now begins the most popular automobile run near Washington, along the north side of the Potomac river, all the way to Cabin John Bridge and Great Falls. The road is macadam in fine condition, except for a steep hill at the start, and another one half way to the bridge; it is smooth and level as a floor for nearly the entire distance and bordered by rows of growing trees. This course is open to pleasure travel when all other suburban thoroughfares are closed by bad weather.

It is called the "Conduit Road," from the fact that a large conduit, carrying the water supply of Washington from Great Falls, is laid underneath its center. Water system and road are both maintained by the Federal Government, under immediate direction of the War Department; the first three miles are in the District of Columbia, the remainder in Maryland. No advertisements are allowed at any point from end to end.

The route lies within a short distance of the Potomac river and the Chesapeake and Ohio canal, sometimes on a level with, at times above the river, passing first the Distributing Reservoir, then the Receiving Reservoir, one hill between. Among the river points over to the left along this course are the Chain Bridge, Little Falls and Glen Echo, the way unmistakable to Cabin John Bridge, ten miles from Washington.

Strictly speaking, this bridge is nine and one-half miles from the Executive Mansion and eight miles from the beginning of the Conduit Road; it is a favorite rendezvous for Washington autoists and the finest of local runs for visitors. Officially this is the

FAMOUS CABIN JOHN BRIDGE ACROSS THE POTOMAC ABOVE GREAT FALLS, A FAVORITE RENDEZVOUS FOR AUTOMOBILISTS.

"Union Arch" (built during the Civil War), but it is commonly known as "Cabin John Bridge," the name taken from the creek flowing underneath. It was formerly the longest single-span stone arch in the world.

On to Great Falls.

The same Conduit Road continues through interesting scenery all the way to Great Falls, making, however, a sharp right turn at the club house, about four miles from Cabin John Bridge. For part of the way the river makes a southerly bend and is lost to immediate view, but nearing Great Falls the former proximity is resumed. The falls are reached by crossing the canal over a lock and then the river itself over a swinging suspension bridge; beyond that a foot path leads to the site of Great Falls, seventeen miles from Washington.

Cars cannot get across this river line, but are left at the Great Falls Hotel, which, by the way, serves a fine dinner for 75 cents. Returning from Great Falls to Washington by far the best way is to reverse the outbound route. It is possible to take a short cross-road from either Cabin John Bridge or Great Falls to the Rockville Road (which does not come to the river at all until several miles beyond Great Falls), but this is not nearly so good as the Conduit Road. The mention of it here is principally by way of caution.

Arlington National Cemetery.

This route is identical in respect to all connections in Washington and Georgetown with the running directions already given in detail for the route to Cabin John Bridge; except that, instead of keeping ahead from "M" street into the Conduit Road, turn squarely left on Thirty-sixth street, crossing the Aqueduct Bridge, previously mentioned, over the Potomac, from Georgetown into the little town of Rosslyn, on the Virginia side.

From bridge exit go ahead a short distance (mud in wet weather, dust and ruts in dry) to fork of road. Then bear right and on over improving surface, up long, steep grade to top of plateau. Pass through Army Post grounds (Fort Myer—no "fort")—sharp, sudden turns, requiring caution—through the National Cemetery to Arlington Mansion, the Custis-Lee homestead.

The cemetery is open daily, including Sunday, from sunrise to sunset; splendid views of Washington and environs and the Potomac from these hills. See local guidebook for full information; impossible to give here. Return to Fort Myer and to Washington by same route or use local road connecting with Alexandria and return over the Long Bridge. To get to this road go south from the mansion to Arlington gate, on Alexandria Turnpike, then bear right to Alexandria, a good road in dry weather.

This would enter Washington by Maryland avenue at the water's edge, making left turn into Fourteenth street across the "Mall" and straight ahead on Fourteenth street to Pennsylvania avenue, which take by either right or left turn, according to destination in mind.

Alexandria and Mount Vernon.

Practically the only route to the home and tomb of George Washington is via the Long Bridge, Alexandria and the Mt. Vernon Pike. It is a hard and disappointing run, and if one cares only to see Mt. Vernon, the trip may be made better by electric car or boat. However, the trip has been made by automobile, and the principal directions are as follows:

Starting from Pennsylvania avenue, turn right or left, according to the point of start, to Fourteenth street. Turn from Pennsylvania avenue into Fourteenth street and go directly south across the Mall, coming into Maryland avenue at the water's edge, this avenue being at once distinguished by the railroad tracks upon it.

Enter the Long Bridge alongside the railroad tracks and cross over to the Virginia side. It is about one and one-fourth miles from the Executive Mansion to the exit from this bridge and about four miles more of rough, red clay and black loam roads, past brickyards, to Alexandria. Go through Alexandria to bridge over Hunting Creek; one-eighth mile beyond bridge turn left; one-half mile farther again turn left, following turnpike over Little Hunting Creek into Mt. Vernon, seventeen miles from Washington.

Highway of History.

In 1888 Congress made an appropriation of $10,000 for a private survey for a route of a Highway of History from Washington to Mt. Vernon, to run through Alexandria and along the Potomac to Mt. Vernon, a route often traveled by the Father of his Country.

Various through roads, most of them "pikes" in fair-to-poor condition, connect the District of Columbia with the towns and cities east, west, north and south. There are other local runs of unusual scenic and historic interest which the visiting autoist may wish to make, if time permits; for these also the directions indicated on the city map will be found of practical value.

Acknowledgment is gladly made of the co-operation of Mr. C. H. Claudy and Manager Hough, of the Washington Pope-Toledo branch, in the preparation of this data. Equally interested co-operation on the part of motorists in other cities would soon make the way of the tourist much smoother than it ordinarily is now.

KING EDWARD AND HIS CARS.

King Edward, of England, is constantly adding to his already extensive line of automobiles, patronizing mainly the English Daimler and German Mercedes makes. He has recently placed an order for a new English Daimler, which will be delivered shortly.

His Majesty's cars are the only ones in the kingdom which bear no number-plate, as even the Prince of Wales makes no exception to the general rule. Many tales are told of little adventures resulting from the absence of the numbers from the King's cars. Only a short time ago an energetic policeman, seeing an unnumbered car flash past him on a country road, telephoned to the police sergeant of the nearest town to hold up the offending vehicle, which was promptly done, to the bewilderment of the police officer, when he was made acquainted with the identity of the inmate of the car.

The King is a great lover of speed and is no respecter of the legal limit whenever a fine stretch of road gives an opportunity for a sprint. The Queen, who owns a charming white Wolseley car, prefers a measured pace, but her grandchildren of Wales enjoy nothing better than a ride with the Monarch himself. The King's chauffeurs wear no distinctive uniform, but a dark blue serge suit and the regulation staff cap to match. The mechanician-footman has, in contradistinction, a white canvas cap.

THE MAYOR "HIT THE PIKE"

Mayor McClellan was at his office in the City Hall yesterday, after a ten days' vacation. He said he was quite recovered from the fatigues of the campaign and ready to take up the work of the city's affairs again. He told an amusing story of his automobile trip to Princeton.

The machine broke down just beyond New Brunswick and left the Mayor and Mrs. McClellan stranded.

A farmer estimated that it would be worth $10 to bring his horses from the fields to drag the automobile to the nearest inn, but a good Samaritan volunteered to hitch up his mules.

Then the chauffeur started to guide the Mayor and Mrs. McClellan. The Mayor's hat was broken, and he carried a hamper of food, put up in New York, to meet any emergencies that might present themselves at the Princeton cottage. Mrs. McClellan carried a bandbox, and the chauffeur led a little Irish terrier, who wore a coat too tight for him, and looked as unhappy as, the Mayor says, he felt. Arrived at the inn, they were confronted by the landlady, who regarded them doubtfully.

"We don't take in professionals," she said. "You can easily walk the distance."

The chauffeur protested, and said something about "our car breaking down."

"Oh, yes, your car," said the landlady scornfully.

The sight of a ten-dollar bill, however, convinced the innkeeper that she was taking no chances.—*Tribune*, New York.

A New York man, after being run over by an automobile, was asked if he wished to prefer charges against the chauffeur, and replied that he did not, because it wasn't the chauffeur's fault. The heroic philosophers are not all dead.—Albany *Times-Union*.

Practical Experiences with Air-Cooled Cars.

By HARRY B. HAINES.

(Concluded from page 546, issue of November 16.)

Double Cylinder Air-Cooled.

EVENTUALLY I disposed of my single cylinder car and invested in a double cylinder one of the same make fitted with a horizontal opposed motor and cooled by the same system of radiating pins and fans as the single cylinder. The ignition system and control was about the same, but the machine of course ran much more smoothly. This machine was fitted with an automatic force feed oiler, which obviated many of the lubrication difficulties experienced with the older type of gravity feed oil cup.

Although I believe trouble has been experienced in some air-cooled cars on account of the breaking of inlet valves from the burning of the metal, I never experienced any such mishaps, all my trouble of this nature being confined to the exhaust valves, which would occasionally break off close to the head, the stem being weakened by the intense heat. Exhaust valve springs sometimes broke also, and when this occurred the motor would act exactly as if the valve itself had broken.

At times the engine would miss explosions and, as we termed it, would "spit." We went over the sparking system and batteries in vain, and finally after considerable difficulty, remedied the trouble by rigging up a new ground wire with a terminal on the frame of the car.

The spiral gears on the engine were subject to considerable wear, owing to insufficient lubrication. I devised a drop oiler that kept the gears well lubricated, and this helped matters a good deal. Later the manufacturers supplied an aluminum case for these gears, the case being filled with grease; after this no trouble was experienced. The double cylinder car is fitted with a very satisfactory lubricating system. I found that the best service was obtained by cleaning out the automatic pump and check valves every five hundred miles.

Testing Out Ignition.

With the peculiar style of ignition used on this car it was a rather difficult matter to test the spark in case of a skip so as to ascertain which cylinder was running and which was not. The plugs could, of course, be tested by taking them out of the cylinders and laying them on the iron frame of the car and then turning over the engine by hand with the switch plug in place, but at times a plug would spark outside the cylinder and then be dead when put in place and compelled to work under pressure. I found that a good method was to short circuit first the front and then the rear cylinder spark plug, while the engine was running, with a screw driver or some other metal tool, and in that way it was possible to ascertain which cylinder was working and which was not.

Another method was to hold the inlet valve on one cylinder, and keep it from working, and see if the other would operate the engine; and again, to disconnect the wires on either the front or rear cylinder spark plug and then try to make the engine run on one cylinder only. None of these methods, however, would give the positive cause of the skipping; it was not always the spark plug that gave trouble, as I soon learned. On this type of car the inlet valve is supposed to open 7-16 inch, and on one occasion the back cylinder went out of business as a result of the set nut loosening and the valve setting becoming deranged so that the valve did not open far enough to draw in a proper mixture.

Running on one cylinder with this car was almost impossible, but I managed to get home on one occasion with only the back cylinder working and covered a distance of twenty miles. The exhaust valve in the front cylinder broke and I did not happen to have a spare valve with me. There was nothing to do but to run home on one cylinder. I took the exhaust valve caging off entirely and also removed the spark plug from the front cylinder and so relieved the back cylinder of the work of pulling the "dead" one over against compression, after which it did considerable better.

Snow on the Spark Plug.

On one occasion I was stalled as a result of a rather peculiar occurrence. It was a cold winter day and there was considerable snow on the ground. I was running along at a fair rate of speed when the engine began to miss fire, and finally one cylinder went out of business altogether. I got out, and, taking up the front floor boards, saw that a large piece of hard-packed snow had been thrown up onto the front end of the cylinder and had lodged against the spark plug and was melting there. The water from the snow had short circuited the plug. Once the snow was cleaned away and the plug wiped off the engine resumed its functions.

The latest car of this type is fitted with an improved make and break, which does away with the stiff steel spring dropping into a slotted steel collar. My car had the old style ignition, and at the end of this spring there was a V-shaped metal block held in place by three small screws. This block dropped into the two slots on the collar and gave the spark for the front and rear cylinders alternately.

This block became loose on one occasion and caused a skipping of spark that was rather difficult to locate. While the engine was working, the tension of the spring and the rapidity of its action had kept the block in place, but when the motor was turned over slowly the block wiggled perceptibly. To tighten the screws was a matter of a few minutes' work, and I burred the ends of them to prevent a recurrence of this difficulty.

The inter-connection of the throttle with the spark advance as used in the single cylinder car was also employed in the double cylinder one and worked to greater advantage owing to the higher power of the engine. An independently operated gas and spark lever has since been designed and is proving more economical of gasoline. The throttle on the double cylinder was so arranged that it was fully opened before the spark was advanced to its extreme position, so that when the engine began to slow down on a hill it was possible to reduce the spark advance and favor the engine without shutting off the gas or changing the mixture.

I might go on indefinitely giving experiences of various sorts that I have had with this car, but space will not permit and I must generalize. Keep your compression good; keep your valves properly timed; keep your fan belts tight; keep your cylinder radiating pins clean; and feed lubricating oil liberally and your air-cooled car will give you satisfaction and service without limit.

The Four-Cylinder Car.

There are a number of four-cylinder, air-cooled machines on the market at present embracing various styles and ideas. My experience has been confined to one machine, a light runabout fitted with a four-cylinder motor in front and depending on the radiation of heat from its cooling flanges from the motion of the car.

My first impression of this car was that it could not possibly be kept cool on a hot day, but I found out that my judgment had been premature and that it not only could but did keep cool. Perhaps from the standpoint of the users of water-cooled engines that little four-cylinder was never cool at all, but despite the heat that it generated it always managed to keep cool enough to operate, and on only one occasion in 2,000 miles did the pistons stick, and that was because the automatic oiler gave out.

Ignition Troubles Infrequent.

Apart from the broken porcelains in spark plugs, the ignition troubles were not frequent, and in case of a skipping spark it was generally possible to determine which cylinder the trouble was in by holding down three vibrators on the coil at a time and so testing the sparking of each cylinder separately. This would give the condition of the spark plugs and enable me to ascertain whether the trouble was there or not. It was then a case of going to the contact points and then to the batteries and testing them.

I have found it a good scheme to crank the engine slowly until the contacts in the timer are closed. Under this condition a buzz should be heard from the vibrator of one of the coils. If no sound is heard the trouble is likely to be in the contact points of the timer corresponding with a particular cylinder or at the vibrator of one of the coils, or it may be in the wiring of this coil. If the engine be turned until the contact box makes the contact corresponding to the next cylinder and still there is no buzzing, it may be taken as a sign that the difficulty is not confined to one cylinder, but may be located in the batteries or in a short-circuited wire somewhere along the line, or in a defective spark plug.

The liberal use of kerosene on the inlet and exhaust valves helped materially in maintaining the high compression necessary to the successful operation of this motor. It was my practice to test the engine at regular intervals in an endeavor to keep the compression in the different cylinders as nearly uniform as possible, as poor compression in one or more of them resulted in a jerky and unsteady power and in overheating.

I learned before long that there were any number of reasons for lost compression. Defective piston rings, unseated exhaust and inlet valves, a spark plug that did not fit properly, were all causes that made themselves apparent.

Overhauling the Engine.

After a month or two of service the engine began to lose power, overheat and act rather strangely, and it was decided to have it thoroughly overhauled. It was taken to a shop for that purpose and the valve settings were gone over and found to be all right. The spark proved to be timed properly and the batteries were live and active. The coil also appeared to be in good condition. The carbureter was dissected and a little foreign matter was found in it but not enough to cause any real trouble or to block the flow of gasoline. The muffler was then taken off and cleaned out and we secured a new kind of lubricating oil and tried the car out again, but with no better satisfaction.

Hills that it would formerly take on the high speed could only be negotiated by slipping the clutch, coaxing the engine and finally resorting to the low speed gears.

Again we went back at the valves and attempted to retime them, but to no avail, and finally it was decided to take the car down to the floor and build it up over again in the hope of locating the trouble. When the engine was taken apart we noticed that the exhaust valve ports were clogged and narrowed down to about one-third of their former size, being filled with a hard substance, the deposit from heavy lubricating oil used when the machine first came. This had baked on so hard that it was necessary to take a hammer and chisel to get it away from the iron.

It was then found that the seat of one of the exhaust valves had been badly battered and it was necessary to have this put in a lathe and touch it up and then grind the valve to fit it. The crank pin bearings were slightly cut in some places, but did not need replacing. The piston ends and explosion chambers were found to be covered with little deposits of carbonized oil, and it was this that had been causing premature explosions and the consequent overheating.

The machine was finally reassembled and was tried out and seemed to have regained its old-time power. Everything went well for a few weeks and we had no trouble, when suddenly the machine developed a new freak and refused to run steadily at high speed or on very rough roads. This proved to be a real puzzle, and it took us several days of experimenting to locate the trouble, which finally proved to be in the carbureter. The guiding rod on the float valve, which is located on top of the carbureter, fitted too loosely at both ends and would not shut off the gasoline when the machine was vibrating either from high motor speed or when traveling over rough roads. This was easily remedied by the mechanic at the shop.

Didn't Use Proper Oil.

Our next trouble was caused by a careless boy at the auto garage, who filled the crank case and automatic oiler with a heavier grade of oil than we had been using, and after the first day the car began to run badly. Eventually I left the machine out of doors for a few hours on a cool night and came out to find all the compression gone. The engine turned over easily and freely, but there was not an ounce of compression, not even enough to operate the inlet valves. I monkeyed around for a time and finally took to squirting gasoline on the inlet valves and working the fluid into the cylinder, but with no result. I had a good hot spark, but there was "nothing doing." Finally I took out the inlet valves one after the other and washed them in kerosene and then poured a quantity in each of the cylinders and turned the engine over by hand. In a few minutes the compression returned as strong as ever and I was able to navigate again. The heavy oil had become chilled and gummed up the piston rings and the exhaust valves, causing the trouble.

In cold weather I found that this engine was easier to start and to keep in operation than the single or double cylinder one. If I left the machine standing all night and it was cold when I came to start it I was generally able to get an explosion by priming each of the inlet valves with kerosene and then turning the motor over by hand to work the fluid down into the cylinders, after which I primed them all with gasoline and then, throwing on the spark, turned the handle.

Speaking in General.

Generally speaking, I would say that, all things taken into consideration, the air-cooled car is equally as desirable as its water-cooled brother and has as many advantages and as few disadvantages. Both types have their peculiarities and their troubles, and both are particularly adapted to the work they do.

The question of the best sort of a car to buy is one that must be left the individual. The experiences of his friends and of other users may be of assistance to him, but, after all, his own judgment will finally weigh the scales in favor of the car on which he has really set his heart and, luckily for the manufacturers, we all have our own ideas and ideals.

OUR FOREIGN COMMERCE.

Exports and Imports for October and Ten Months Ending with October.

Exports of automobiles and parts from the United States are given by the countries of destination for the first time in the October number of the *Monthly Summary of Commerce and Finance*, as published by the Bureau of Statistics of the Department of Commerce and Labor. The figures are given as follows for October, 1905, and for the ten months ending with October:

Exported to—	Oct., 1905	Ten mos. ending Oct., 1905.
United Kingdom	$ 50,136	$604,782
France	2,190	254,030
Germany	8,162	101,998
Italy	1,740	154,325
Other Europe	8,903	222,817
British North America	18,715	501,765
Mexico	13,464	150,042
Other West Indies and Bermuda	12,274	124,552
South America	5,571	48,938
British East Indies	3,620	28,602
British Australasia	4,043	85,548
Other Asia and Oceanica	1,318	60,591
Africa	2,716	28,737
Other Countries	1,136	2,894
Total	$133,988	$2,369,621

The total for the month of October shows an increase of $3,117 over the exports for the same month a year ago, and the total for ten months shows an increase of $792,744 over the same period in 1904 and of $1,057,661 over the corresponding period in 1903.

Imports of automobiles, which have not previously been enumerated in the bulletin, are now being published, but are not given by countries of origin. The report shows that ninety-five cars were imported during October of this year, being of a total valuation of $409,841, and that during the same month parts valued at $17,921 were brought in. During ten months, ended with October, 390 cars, of a total value of $1,475,299, were imported, and parts were brought in to a total valuation of $86,674. There are no earlier statistics with which these figures can be compared.

Letter Box

About the New Bleriot Light.

Editor THE AUTOMOBILE:

[289.]—I read with a good deal of interest the article on French lamps, and especially on the new Bleriot light. I have looked into the matter somewhat and thought that a few facts might be of interest. The light, as many will readily see, is a modern adaptation of the oxy-hydrogen, or lime, light formerly used very extensively for stereopticon work and for stage lighting until displaced by the electric arc light, with which it compares very favorably as to brilliancy. This last feature, its great illuminating power, would probably be its main advantage over acetylene, as it is much more expensive to operate. Oxygen gas costs from six to eight cents a foot delivered in cylinders. Then, of course, there is the cost of the earth pastile or lime cylinder, which has to be renewed with more or less frequency. The cost of the necessary naphtha can be neglected. The ordinary stereopticon uses about six feet of oxygen per hour; the probability is, however, that an automobile searchlight could be operated on about two feet per hour.

On the other hand, the oxygen need only be turned on just when the light is needed, and the strength of the light can be regulated to a nicety by the amount of oxygen used. Without the addition of the oxygen, almost no light will be given off by the action of the flame on the pastile.

The labor of upkeep, with the exception of lighting up the gasoline burner, would compare very favorably with acetylene, even where a tank is used. The main trouble would probably be in getting the cylinders filled with gas at the light pressure used.

HAROLD H. BROWN.

Boston, Mass.

Remedy for Back Draft in Steamer.

Editor THE AUTOMOBILE:

[290.]—I have noticed inquiries in THE AUTOMOBILE as to how to prevent the blowing back of the fire in a steam car on a windy day, and have been reminded of my own troubles and their cure. Several times I have been asked my opinion of the closed burner system, and I answered some that I did not favor it because of the probably imperfect combustion. I was moved to experiment, however, and covered up all the flue holes in a common plate burner with a sheet of asbestos, so that all the air used had to enter through the mixing tube. Of course this arrangement smoked at first, but I found it possible to stop the smoking by reducing the size of the gas aperture till I got a fire that looked the same as that produced with the flues open. To my astonishment, I discovered that I obtained rather more heat than before, with a trifle more than half the consumption of kerosene, which is the fuel I use. The blowing down of the fire was absolutely and finally cured. The experiment is well worth trying; doubtless it would work as well with gasoline as with kerosene. The sheet of asbestos is, of course, placed under the burner, so as not to close the gas aperture. G. A. H.

Decatur, Ill.

St. Louis Club on the Warpath.

Editor THE AUTOMOBILE:

[291.]—Vigorous action by the St. Louis county officials has brought about a peculiar state of war here. They have stationed deputies along the roads, who mark off distances of 3,000 feet and with stop watches time all automobiles that pass. Needless to state, they stop all machines going more than fifteen miles an hour, and, in most instances, at the point of a revolver.

The Automobile Club of St. Louis has taken up the matter and appealed every case. The state law requires all machines to keep within a speed limit of nine miles an hour. The law further allows each and every county to require the owner of every car used on the roads of that county to secure a license; consequently, to run a machine through Missouri, entering every county, would cost about $250.

As a matter of protection, the club has engaged three detectives, who keep the deputies in sight and then warn approaching automobile drivers of their presence. In the last three days we have prevented fifty arrests. Two deputies, who have been particularly energetic, lay in waiting from 9 in the morning until 4 in the afternoon. Seventy machines passed them going less than nine miles an hour, and about 4 o'clock in the afternoon they got disgusted and returned to the saloon, where they have been ever since. Our men stopped every machine and by their warnings saved a great deal of trouble.

As a result of this sort of work, we have almost doubled our membership. The club is in close touch with the street department of St. Louis and is forcing the street railway companies to improve their crossings. Police regulations within the city are very satisfactory; we are allowed a speed of about eighteen miles an hour.

The club members agree with the editorial in your issue of November 23 regarding the use of reflecting gas lamps in the city. The glare of these strong lights is sufficient to frighten anything that comes within their range.

A. B. LAMBERT,
Pres. A. C. of St. Louis.

St. Louis, Mo.

Enclosed with the foregoing letter were two public notices issued by the club. One was a "caution," advising automobilists that if they ran their cars at more than nine miles an hour they were liable to be held up "by rather suspicious-looking individuals, with long revolvers" pointed in their faces. It announced that the automobile club had retained an attorney to protect its interests, and that the arrests made on the previous Sunday would be appealed and, if necessary, carried to the highest courts. It proclaimed the intention of the club to test the state law which permits each county to charge $2.50 for a license even to pass through the county with an automobile. Reckless driving was charged with being instrumental in bringing about the objectionable state of affairs. The bad condition of the streets was pointed out and automobilists were called upon to add their protests to those of the club, in the hope of making them more effective.

The other notice announced the intention of organizing the automobile clubs of St. Louis, Kansas City and St. Joe into one association to invite the coöperation of automobile owners throughout Missouri in a request of the legislature to pass a bill creating a state license, uniform speed limits and other regulations necessary to public safety, yet giving equal rights to automobilists. As such things need strong representation, the unaffiliated owners were invited to become members of the club to help the work along.

WANT ACTION BY CONGRESS.

WASHINGTON, D. C., Dec. 4.—It is on the program that Congress, which convenes today, shall take some action this winter looking to the protection of Washington automobilists from the many annoyances to which they are constantly subjected.

During the week President Duvall, of the Automobile Club of Washington, had a conference with District Commissioner West and Judge Kimball, of the police court, relative to the matter, and it was decided that Congress should be asked to make certain amendments to the "peace and order act" of July 8, 1898. One of these proposed amendments is that the fine for "taking and carrying away the property of another without the right to do so," be increased from $40 to $100, with imprisonment for six months, or both, at the discretion of the court. Congress will also be asked to make certain changes in the phraseology of the act, so that "taking and carrying away" shall be held to cover the movement of automobiles without the offender actually taking and carrying away the machine.

The club has also suggested a heavier fine for the offense of assaulting passing automobilists by hurling stones and other missiles at them.

A power boat postal service is to be opened on the Venetian canals and lagoons early in January, and it is quite within the realms of possibility that enterprising persons will "run" a line of passenger auto boats on the waters of the Italian city over which the poets rave.

Redd—Is he given to blowing his own horn?

Green—Oh, no; he has a chauffeur.—Yonkers *Statesman*.

Marion New Air-Cooled Model.

IMPORTANT changes have been made in the 1906 air-cooled car manufactured by the Marion Motor Car Company, of Indianapolis, Ind. The new Marion car, Model 5, is a large touring car with the air-cooled motor, of 28 horsepower, placed fore-and-aft under the bonnet in front; the 1905 car had the motor placed transversely. The new machine is fitted with a multiple disc clutch and three-speed sliding transmission gear in place of planetary gearing, while drive to the rear wheels is by side chains, as was the case with last year's car. The horsepower has been increased from sixteen to twenty-eight. As in last year's car, four cylinders are used.

All the valves are mechanically operated; a feature of the 1905 car that is retained is that the exhaust valve, opening directly through the cylinder head, is of large diameter. This valve is operated by an arm projecting from the top of the operating rod, as the photograph of the engine shows. Long guides take the side thrust. The inlet valves are on the left-hand side of the motor, while the exhaust manifold leads off on the right-hand side. A method of lubricating the engine has been adopted which, the manufacturers state, is reliable, regardless of temperature, and is efficient and economical, avoiding the smoky exhaust frequently due to excessive lubrication. The cylinders have a bore and stroke of 4 1-2 inches each.

Bearings throughout the car are of large dimensions so as to give long wear. The main bearing of the crankshaft, next to the flywheel, is 1 3-4 inches in diameter and 4 1-8 inches long; crankpin bearings are 1 3-4 inches in diameter and 2 1-2 inches long; and the piston pin bearing is 1 1-4 inches in diameter and 2 3-4 inches long. The bearings of the transmission shafts are also very large.

A single aluminum casing contains the multiple disc clutch, the sliding gear transmission, the bevel driving gears and the differential. The gears give three speeds forward and one reverse, the drive being direct on the high gear, when no gears are in mesh except the bevel driving gears, the countershaft remaining stationary. The reverse gears are in mesh only when the car is being driven backward. Very long bearings are used, and lubrication is effected by means of ring oilers dipping into oil wells below the bearings. The jackshaft is supported at its outer ends in non-adjustable ball bearings, the bearings being carried by tubular extensions of the gearcase through which the jackshaft passes. A single lever controls the sliding gears. The multiple disc clutch runs in oil in the forward part of the aluminum casing, the power of the engine being transmitted to it through a universally jointed shaft.

Drive is by side chains from the jackshaft to the rear wheels; the sprockets on the jackshaft are solid and have twenty-five teeth, while the sprockets on the rear hubs have forty teeth and are attached to the brake drums. The large size of the sprockets is said to have the effect of rendering the chain drive very quiet. The brake drums contain two sets of internal expanding brakes, one being the regular service brake and the other the emergency brake. The expanding rings are placed side by side and are entirely enclosed in the drums.

The framing is of pressed steel, and the car is mounted on full elliptic springs in front, where the weight is greatest, and semi-elliptic scroll springs in the rear. The radius rods are so arranged that the tension of the chains does not vary with the vertical movement of the body on the springs. The radius rods take all the braking strain, relieving the springs of this work.

Wheels are 32 inches in diameter, with 3 1-2 or 4-inch tires. The road clearance is 10 inches, though the car has the appearance of being low hung. The weight of the complete car is 1,950 pounds, this figuring out at about 70 pounds for each horsepower of the motor. The body is of attractive modern design, and is comfortably upholstered; five passengers can be seated, the wide rear seat having ample room for three.

More Details of Brasier Designs.

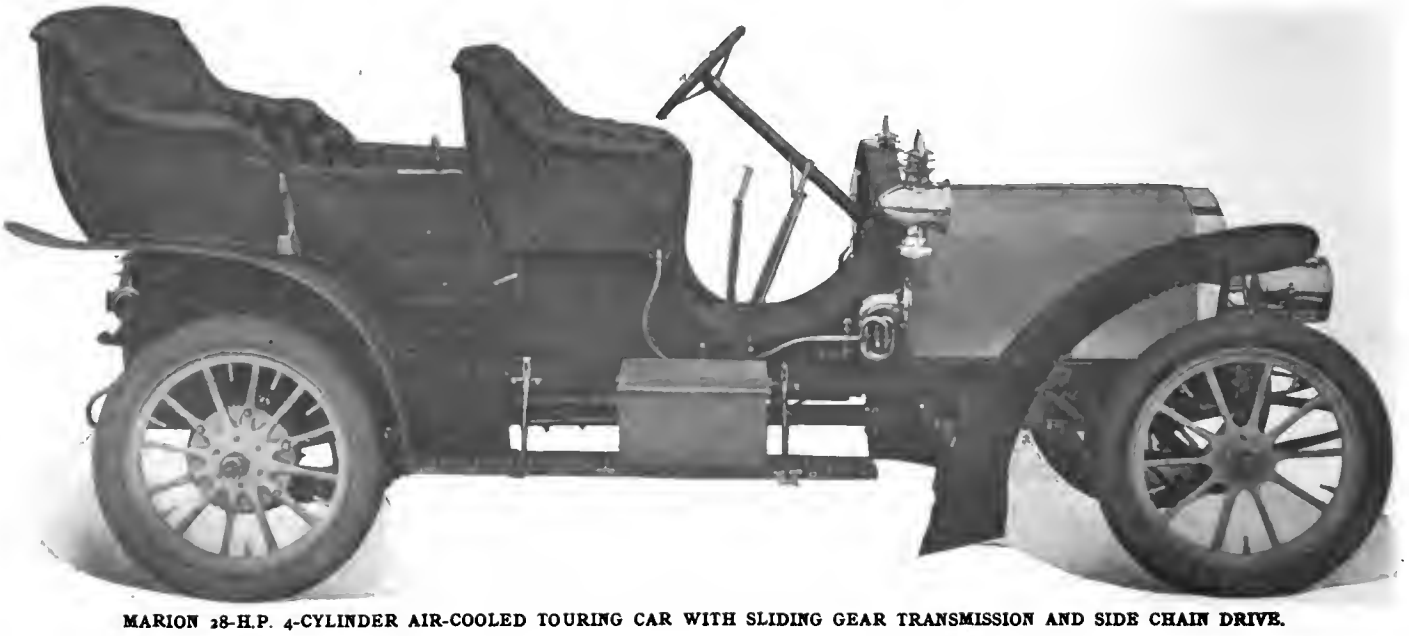
Herewith are given some details of ignition, lubrication, transmission and drive of the Brasier designs which were omitted through an oversight from the description published in last week's issue (November 30) of the 1906 models of Richard Brasier cars.

The camshafts are made stouter in diameter than they were formerly and are cut from the bar with the cams formed integral; this suppressing the play that is likely to take place in the course of time with keyed cams, and giving at the same time a neater and stronger construction, though, of course, a more expensive one.

Profile of the Cams.

The profile of the cams is such that it gives a flow of gases proportional to the speed of the piston during the different portions of the stroke, the effect of the momentum of the charge and other factors of disturbances being carefully calculated and taken into consideration with a rather unusual care, the recompense for which is found in the high power given out by the engines, considering their size and weight.

The distribution gears are made stronger than on the previous models; they are mounted on the tapered ends of their shafts and keyed there, a nut drawing the whole together.

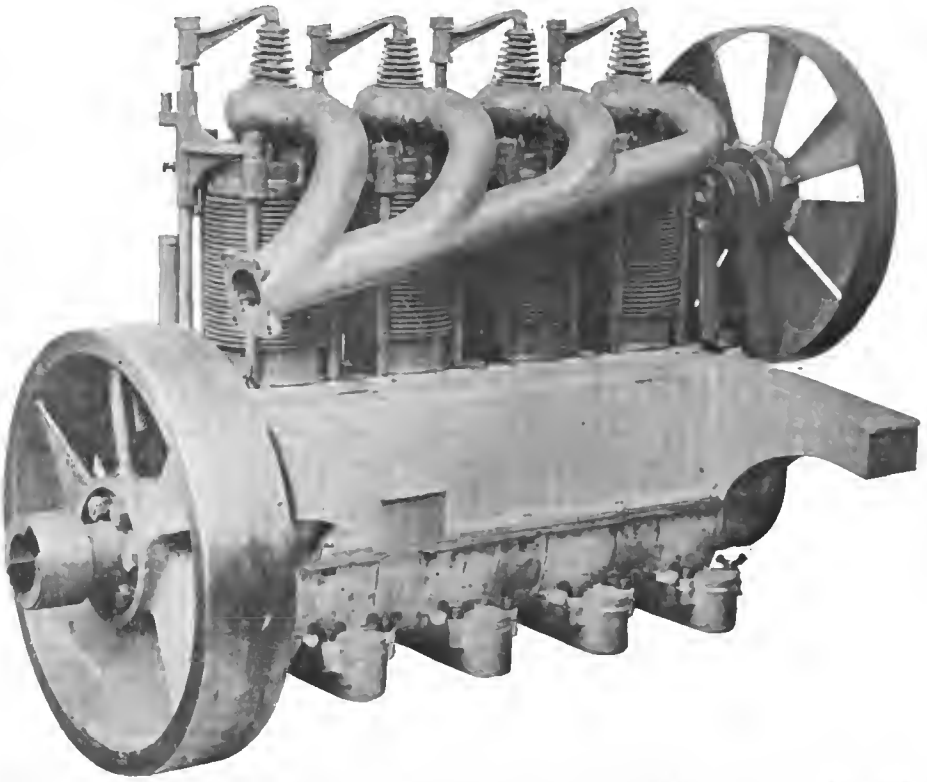


MARION 28-H.P. 4-CYLINDER AIR-COOLED TOURING CAR WITH SLIDING GEAR TRANSMISSION AND SIDE CHAIN DRIVE.

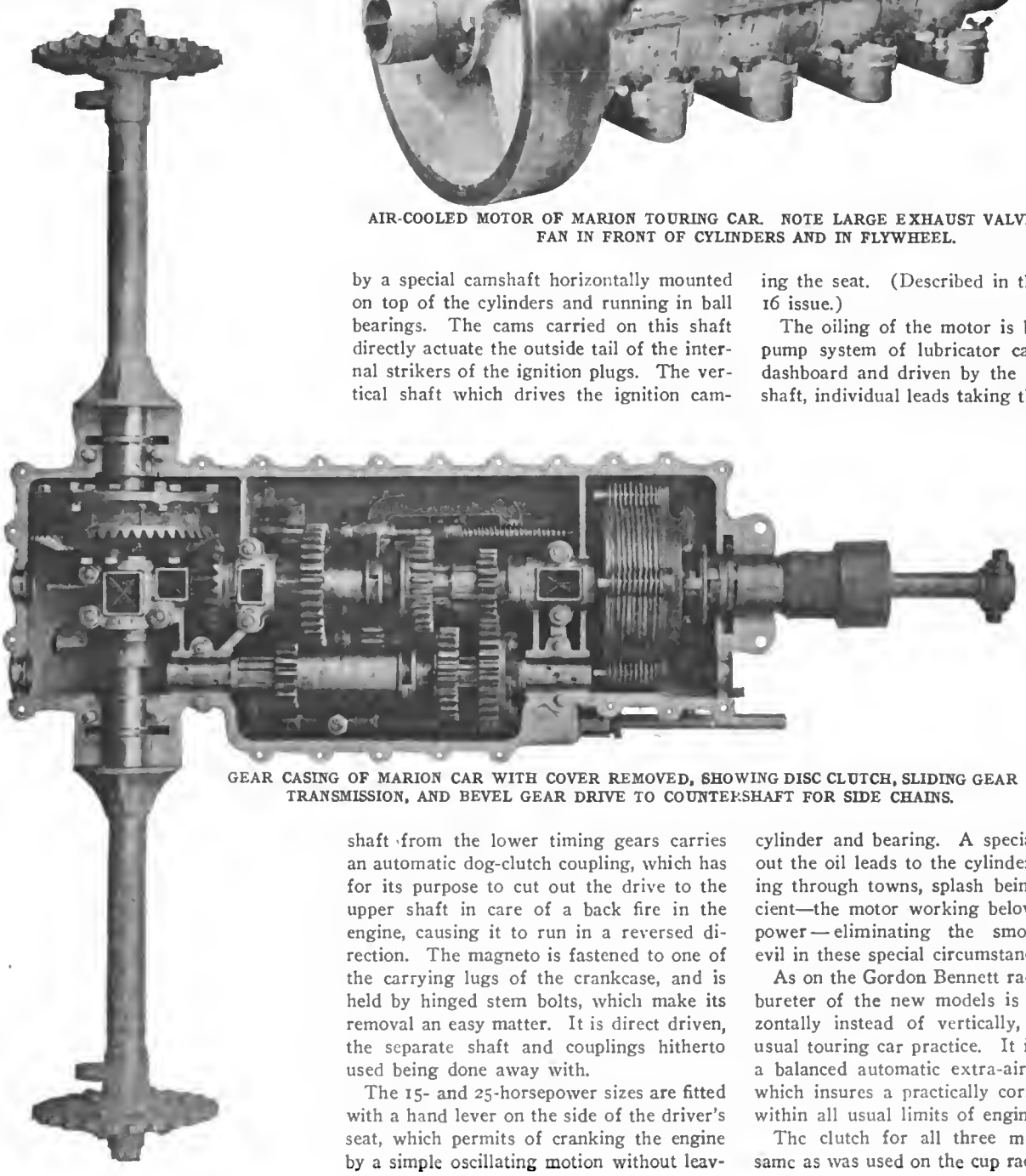
The crankcase casting is of a new shape, fitted with interior guard plates, so as to prevent excessive splashing of oil on to the cylinder walls, disagreeable experiences on Caillois Gordon Bennett racer having shown this to be a desirable improvement. It at the same time permits an unusually large amount of oil inside the crankcase to lubricate the crank pins and main bearings.

Ignition by Magneto.

The ignition is by magneto, and the usual Brasier make-and-break device, which is water cooled. A most interesting change has been made in this system, which should overcome many of the objections that are often raised to the make-and-break system. All the array of rods, springs, levers and sundry hardware generally found in make and break is done away with and is replaced by a special camshaft horizontally mounted on top of the cylinders and running in ball bearings. The cams carried on this shaft directly actuate the outside tail of the internal strikers of the ignition plugs. The vertical shaft which drives the ignition camshaft from the lower timing gears carries an automatic dog-clutch coupling, which has for its purpose to cut out the drive to the upper shaft in care of a back fire in the engine, causing it to run in a reversed direction. The magneto is fastened to one of the carrying lugs of the crankcase, and is held by hinged stem bolts, which make its removal an easy matter. It is direct driven, the separate shaft and couplings hitherto used being done away with.



AIR-COOLED MOTOR OF MARION TOURING CAR. NOTE LARGE EXHAUST VALVES IN HEADS, FAN IN FRONT OF CYLINDERS AND IN FLYWHEEL.



GEAR CASING OF MARION CAR WITH COVER REMOVED, SHOWING DISC CLUTCH, SLIDING GEAR TRANSMISSION, AND BEVEL GEAR DRIVE TO COUNTERSHAFT FOR SIDE CHAINS.

The 15- and 25-horsepower sizes are fitted with a hand lever on the side of the driver's seat, which permits of cranking the engine by a simple oscillating motion without leaving the seat. (Described in the November 16 issue.)

The oiling of the motor is by a plunger-pump system of lubricator carried on the dashboard and driven by the ignition camshaft, individual leads taking the oil to each cylinder and bearing. A special valve cuts out the oil leads to the cylinder while driving through towns, splash being then sufficient—the motor working below its normal power—eliminating the smoke-and-smell evil in these special circumstances.

As on the Gordon Bennett racers, the carbureter of the new models is placed horizontally instead of vertically, as was the usual touring car practice. It is fitted with a balanced automatic extra-air inlet valve, which insures a practically correct mixture within all usual limits of engine speed.

The clutch for all three models is the same as was used on the cup racers for both

this and last year. It is one of the most interesting parts of the machine. It is primarily a leather-faced cone clutch, but fitted with special locking system, giving a rigid drive once the clutch is fully engaged.

The locks consist of steel plunger rods, held in slides in the male clutch member and constantly pushed in their furthest forward position by means of small coil springs. The length of these plungers is such that they clear the web of the flywheel which forms the female member of the clutch when the latter is withdrawn. These plungers are so arranged that the clutch, being put into engagement, will gradually take hold, owing to the leather facing, and so that when the hold is complete the plungers (of which there are four or six, according to the size of the engine,) will drop into the nearest ones of the thirty-six holes drilled opposite to them in the flywheel web.

The speed-change gear is of the same direct-drive-on-top-gear type as last year, giving four speeds and reverse controlled by one lever and mounted on ball bearings. The only difference comes in the general strengthening of the gears and shafts.

Both Live Axle and Chains.

In the 15-horsepower model the transmission is by propeller shaft and live axle. In the 25- and 50-horsepower models the drive is by side chains, as in the racing models of the past two years. Formerly the touring cars were all live-axle machines.

These changes from shaft to chain drive for the heavy models were not caused by any special defect of the shaft-drive system, but simply for the reason that with the extremely heavy and bulky closed types of bodies now required by the French buyers, the live axle had to be of such strength as to weigh considerably more than is the case for a side-chain car. With tbe 15-horsepower models this drawback does not exist. The chains used for the chain-driven car are identically the same types, make and size, that never gave any trouble with the 96-horsepower racing-car engines. They consequently should be well up to their touring work.

New Points About the Olds.

The accompanying engravings give some interesting views of the new four-cylinder 24-26-horsepower Oldsmobile touring car built by the Olds Motor Works, of Lansing, Mich. This machine was described in The Automobile of November 16 last, but only a photograph of the complete car was available. A number of interesting points are brought out in the detail photographs reproduced herewith. It will be noticed that in the photograph showing the under side of the car—a rather unusual view—the dust pan, extending from the radiator to the rear of the transmission gearcase, has been removed. When in place the motor and transmission are well protected from flying dust and mud. The spaces between the sub frames and the main frames are filled by permanently attached dust guards, which add materially to the strength of the frame as a whole.

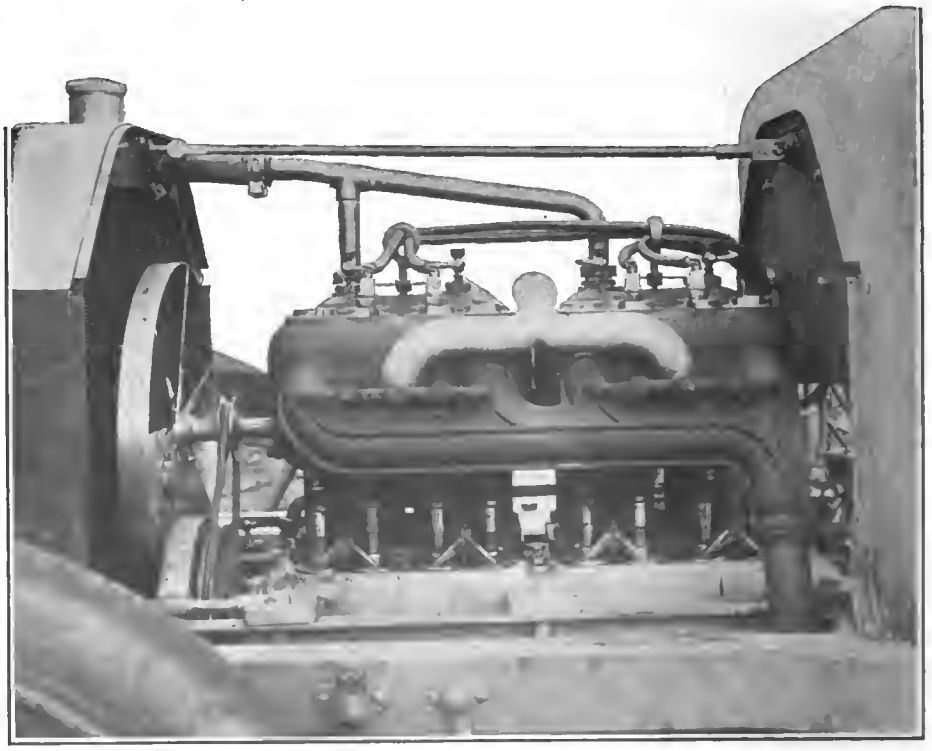
STEERING CONNECTIONS OF FOUR-CYLINDER OLDS TOURING CAR.

The muffler, which is said to be exceedingly efficient in deadening the sound of the exhaust, is of unusual form, consisting of a cast-iron expansion chamber below and close to the engine, into which the exhaust gasses pass from the engine and are expanded; and the sheet-iron muffler proper, where the gases are cooled down before being allowed to escape into the atmosphere. A muffler cut-out allows the exhaust to escape directly into the air at the will of the driver. The long dustpan and the arrangement of the underbody of the car are said to make the car comparatively dustless. Tanks for kerosene for the lamps, and for lubricating oil, will be carried under the rectangular gasoline tank, though not shown in the photographs. The contents of the tanks may be drawn off through cocks at the sides of the car.

The emergency brakes, which are expanding rings working in drums on the rear hubs, are so connected up that the pull on the hand lever is divided equally between the two brakes. The equalizing device consists of a divided cross shaft; to each of the adjoining ends is attached a short lever, and to the end of each lever is attached the end of a yoke, the middle of which is pivoted to the rod that transmits the pull from the hand lever. The shaft is supported at the divided place by a short sleeve bolted to the end of a rod which extends back to the rear cross member of the frame. This arrangement takes all bending strain off the cross shaft, which has only the torsional strain to carry; the brace rod easily takes care of the straight pull. This brake interlocks with the clutch.

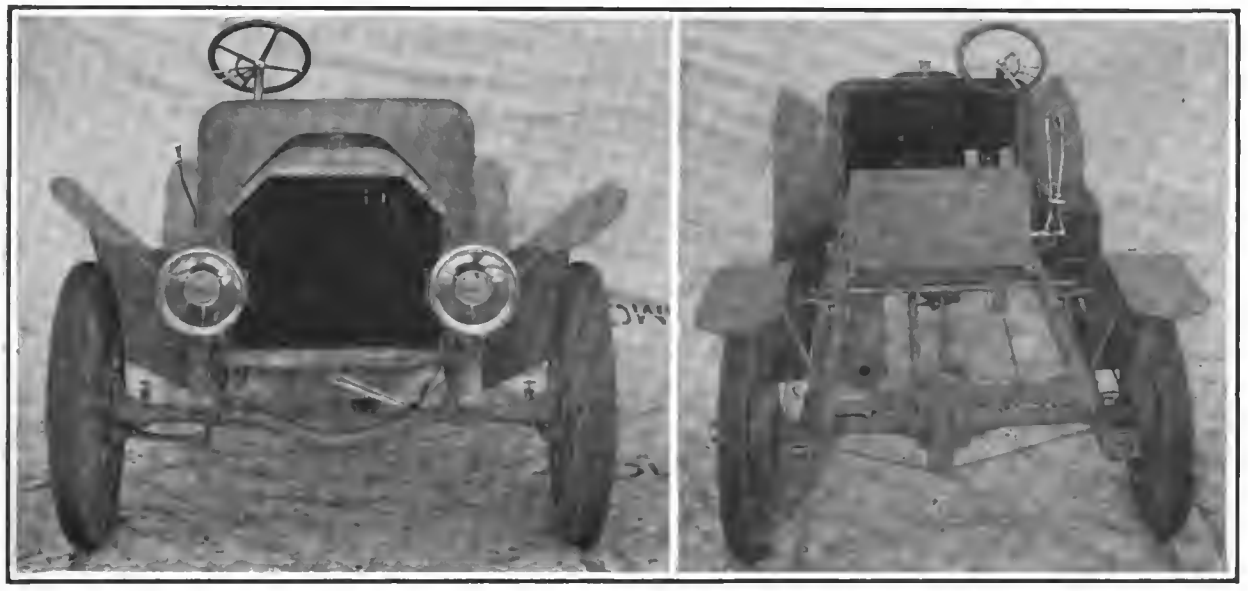
The curved hangers on the frame ends, to which the springs are attached, are of channel section, open side downward, and are forged with transverse ribs to give stiffness. Stiffening pieces are added where the hangers are rivited to the frames.

The photograph of the right-hand side of the front part of the car shows, among other things, the connections between the steering gear and the knuckles; the gear is of the thread and nut type. The swinging arms are long, and the connecting rod joints are fitted with spring buffers. It will also be noticed that the lubrication of the wearing parts is provided for by means of compres-



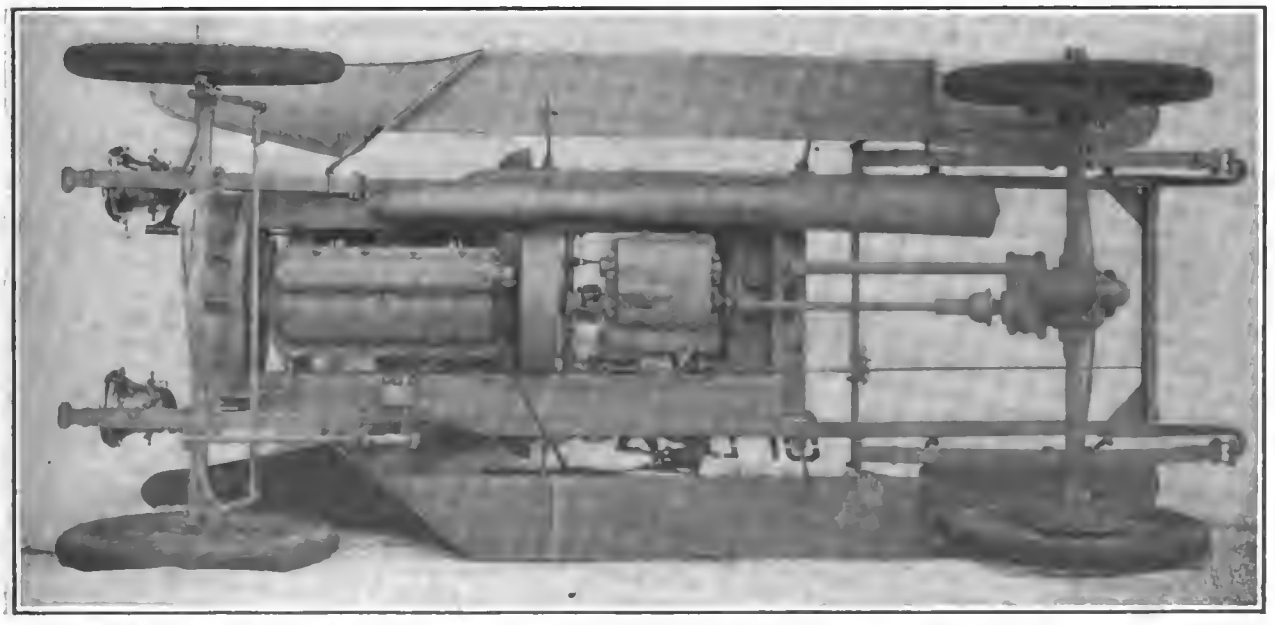
LEFT-HAND SIDE OF MOTOR OF OLDS TOURING CAR. NOTE BRIDGES HOLDING EXHAUST AND INLET PIPES IN PLACE AND PUSH ROD GUIDES.

OLDS 1906 MODEL FOUR-CYLINDER MOTOR-IN-FRONT TOURING CAR, BODY FITTED WITH COLLAPSIBLE HOOD.



FRONT VIEW OF OLDS TOURING CAR CHASSIS.

BACK VIEW OF OLDS TOURING CAR CHASSIS.



VIEW OF CHASSIS OF OLDS FOUR-CYLINDER TOURING CAR TURNED UPSIDE DOWN, WITH PROTECTING PAN REMOVED.

sion grease cups, so placed as to lubricate the thread and nut at the foot of the column, the pivots on the knuckles and the joints between the knuckle arms and the main connecting rod reaching across from one knuckle arm to the other. This rod is adjustable in threaded sockets fitted with pinching screws, so that the wheels can be lined up if they get out of parallel. Castellated nuts, split-pinned, are freely used. The hub caps are stamped with arrows showing the direction in which they must be turned when they are to be removed; this avoids confusion and the useless expenditure of strength when left-hand threads are used on one side and right-hand threads on the other.

On the engine, it will be noticed that the exhaust and inlet manifolds are both secured in position by the same yokes, four in number; a system of yokes is also used to hold the push-rod guides in their places in the crankcase; the guides are closely fitted, and this method holds them securely and permits their removal with ease and rapidity.

The radiator is supported on a bracket carried by the side frames, but is not itself attached to the frames; thus twisting strains caused by the springing of the frames are avoided. Under the crankcase of the engine will be noticed the lubricating oil tank; at the rear of the oil tank is a small gear pump which forces oil to the crankcase, main engine bearings and the transmission gearcase.

The high tension cables leading to the spark plugs are carried above the cylinders by metal brackets having holes through which the cables pass. The spark plugs are screwed into the screw covers over the inlet valves. All valves are mechanically operated, and are all on the left-hand side of the motor. Compression relief cocks, which may also be used as "dope" cocks, are placed in the cylinder heads.

The Oldsmobile touring car was designed by H. E. Coffin, chief engineer of the Olds Motor Works, who has devoted much time to the detail improvements on the car.

The new Oldsmobile appears to be simply and substantially constructed and to be free from "trappy" features or flimsy components, and there are a number of little things that will appeal to the automobilist. Among these are the leather guards placed between the inner edges of the front mudguards and the frame, thus protecting the front part of the car from the considerable amount of dirt and mud that usually finds its way inside the ordinary mudguards.

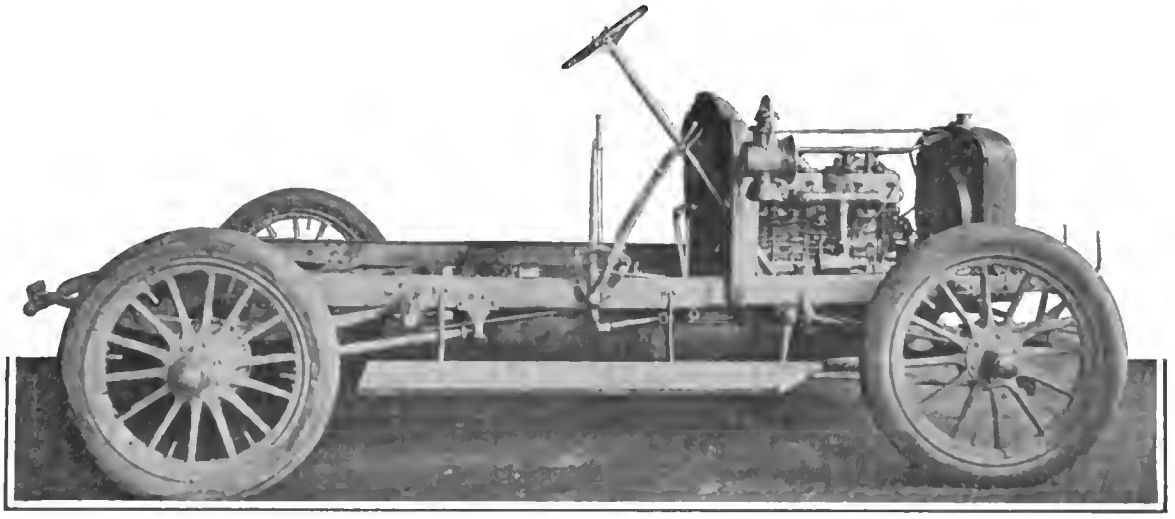
By way of recapitulation, it may be said that the car has four vertical water-cooled cylinders, cast in pairs with integral heads, jackets and valve chambers; leather-faced cone clutch; three-speed sliding gear transmission with selective lever control; shaft and bevel gear drive; pressed steel framing and tubular axles. Wheelbase is 106 inches and tread standard, or, if desired, may be had wider or narrower than the usual 56 inches. Weight, 2,200 pounds. As the photograph of the complete car shows, the body is of modern design and built on attractive lines.

Improvements in Ardsley Cars.

A number of important changes that make for greater efficiency and reliability have been made in the Ardsley cars for the season of 1906 by the Ardsley Motor Car Company, of Yonkers, N. Y. The frame and running gear, the engine and the transmission remain practically as they were in the 1905 model, as described at length and fully illustrated in the issue of THE AUTOMOBILE for January 7, 1905, but the ignition system has been changed, an entirely new carbureter has been adopted, the muffler is replaced by another of different type and is differently located, and the body has been slightly altered.

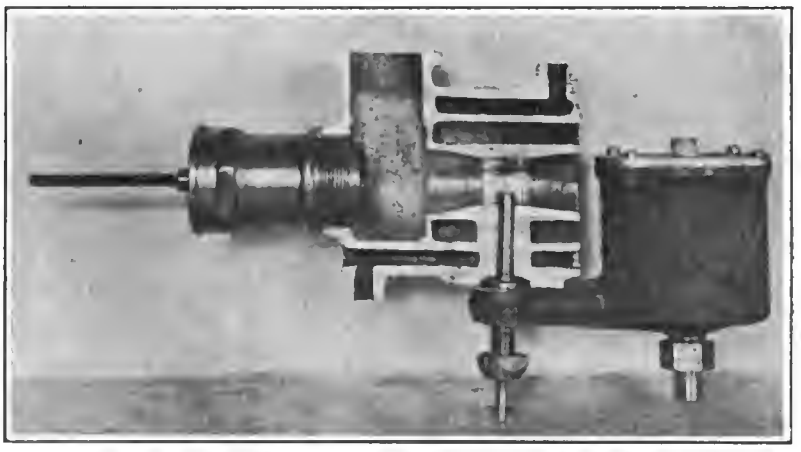
The Ardsley is assembled from standard high-grade parts, many of which are especially designed and made to order. The frame is of channel section pressed steel, the axles are tubular with removable live shafts from differential to drive wheels, the springs are semi-elliptic, 44 inches long in front and 48 inches at the rear, and are attached by trunnions to the side frames. The steering knuckles are of reversed Elliot pattern. The engine is of the vertical four-cylinder foreign type, the cylinders cast in pairs with integral water jackets. Inlet and exhaust valves are on opposite sides of the head in cages held in place by yokes. The camshafts are housed in the crankcase on either side and are driven by enclosed spur gears at the front of the motor. The stroke of the piston, which was formerly 5 3-4 inches, has been increased to 5 7-8 inches, but the bore of the cylinders remains 4 5-8 inches.

IMPROVED ARDSLEY FOUR-CYLINDER TOURING CAR FOR 1906, FITTED WITH CAPE CART HOOD.



SIDE VIEW OF CHASSIS OF NEW ARDSLEY TOURING CAR WITH MOTOR 4 5-8 BORE AND 5 7-8 STROKE.

In a further attempt to get more power out of the engine, a new type of carbureter designed by E. B. Blakely, general manager for the company, who was recently with the Haynes Automobile Company, of Kokomo, has been substituted for the old one. This is patterned after the type used in the later Mercedes, and is shown in cross-section in one of the photographs herewith. It has no automatic valves and no springs. The float-feed chamber is of the ordinary type, but the float is of spun brass with only one joint, which is on top where it is above the normal level of the gasoline. In this position the liability of the float to leakage is reduced to the minimum. The main vaporizing chamber is in the form of two cones with the small ends together, producing a slight stricture at the point where the spray nozzle enters the chamber. The object of this stricture is to maintain as nearly as possible a constant velocity of air at the gasoline nozzle to induce a regular flow of fuel. The air inlet is at the right-hand end of the chamber next to the float chamber. At the opposite end is the throttle, which is in the form of a sliding valve with an air hole cut in the bottom so that as the throttle is opened an auxiliary stream of air is allowed to enter the mixing chamber. A notable feature of the carbureter is that instead of taking warmed air into the carbureter to prevent it from frosting up, owing to the evaporation, the mixing chamber barrel is heated by using a shunt from the exhaust pipe of the engine. The hot gas circulates through the annular space next to the outer wall of the barrel. An inner annular space, open to the outer air at its right end, keeps the carbureter from getting too warm and the air for the mixture from being heated as it enters. Thus the charge of gas has little chance to expand before it enters the cylinders and so retains the maximum heat value per intake stroke of the piston.

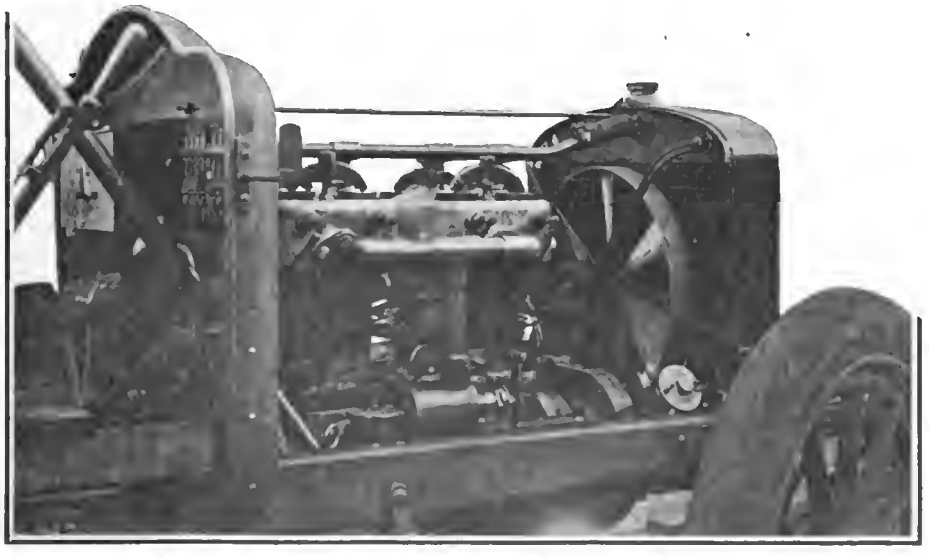


PHOTOGRAPH OF NEW ARDSLEY CARBURETER PARTLY IN SECTION.

This carbureter has proved so successful in the tests that have been made with it that the company is preparing to place it in the market independently of its Ardsley cars.

A new dash is another of the new features this year. It is of pressed steel, of the concave type, as seen in the engraving. A steel pan is also fitted under the car extending from the front of the engine to a point beyond the rear of the transmission case.

The lubricating oil reservoir is attached to the dash on the left side under the hood, where its contents is kept warm. A small lead from the exhaust pipe conveys pressure to the tank and forces the oil into the sight feeds on the concave side of the dash in front of the driver's seat. The first four of these feeds oil the four cylinders direct, the next three oil the main bearings



INLET SIDE OF ARDSLEY ENGINE, SHOWING NEW CARBURETER AND TIMER.

of the crankshaft, and the eighth feed oils the crank base. This insures positive lubrication of the cylinders both through direct feed and by splash from the base. The gear case bearings are lubricated by a large grease cup on the left side of the dash, one turn of which is said to give lubrication enough for 100 miles.

The high tension magneto ignition used last year has been abandoned in favor of the simple timer and coils, made by Lacoste. The timer is driven by bevel gears on the forward end of the inlet valve camshaft, which permits of placing the timer in a very accessible position.

The inlet manifold and the water manifold are made of copper tubing with brass terminals, rubber hose connections having been discarded.

A Mercedes type of muffler has been adopted and is now carried transversely at the extreme rear of the frame, instead of under the middle of the car, as heretofore.

Compression relief, instead of being operated from the dash, is now operated from the front of the car beside the starting crank—the logical place for it, as no one wants to run around from the front to the dash to shut it off after getting the engine started. The relief lever slides the exhaust valve camshaft longitudinally in its bearings to raise or lower the valves on their seats.

Another change is in the rear hub brakes, which, instead of employing wood against cast steel for friction now have cast steel sliding on cast iron, making the brakes much more positive and better wearing.

A larger body of the same style and design as last year is fitted to the chassis.

Plans have been made for the production of twenty-five of the improved Ardsley cars, and space has been taken at the New York show for their exhibition.

Kansas City Truck.

The truck illustrated herewith is a gasoline machine built by the Kansas City Motor Car Co., of Kansas City, Mo., for general commercial work. It has a maximum rated carrying capacity of two tons and a maximum speed of twelve miles an hour, and can be used as a platform or stake truck, or can be fitted with a top or an enclosed body. The side frames are of channel iron and the axles and springs are heavy and substantial. Drive is by side chains; the rear wheels are 38 inches in diameter and the front wheels 34 inches, with solid rubber tires. This truck will be finished in any desired color; the equipment of each machine consists of oil lamps, horn and a dash apron for the driver's protection.

[. TWO-TON GASOLINE PLATFORM TRUCK, BUILT BY KANSAS CITY MOTOR CAR COMPANY.

PREPARING FOR NEW LICENSES.

PHILADELPHIA, Dec. 4.—Steps have been taken by the Automobile Club of Philadelphia to save its members from the annoyance of making a trip to Harrisburg to secure licenses, as necessitated by the new law, which goes into effect January 1 next. By agreeing to stand sponsor for each member the club has arranged for getting the coveted tags in a bunch. This move will obviate the delay that is sure to occur at the capital when the rush for licenses begins.

The new license blanks will, it is understood, be distributed this week, and the club is urging its members to secure and fill them out at once, in order that the applications may all be in hand ready for turning over to the new Automobile Bureau at as early a date as possible.

Just how the great majority of local automobilists who are "unattached" are to get their credentials without making personal trips to the capital has not as yet developed. They are hoping that some eleventh-hour arrangement may be made with the city officials whereby the latter may designate some one of the departments to receive applications and grant licenses.

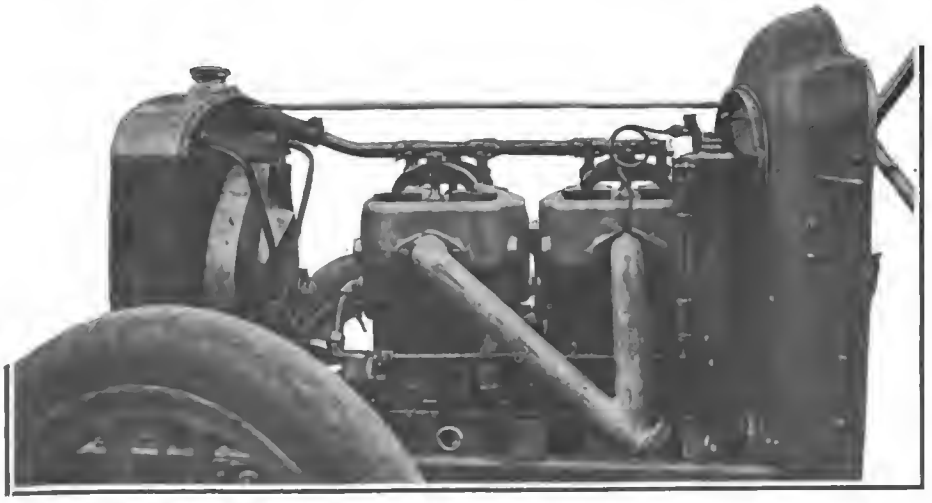
MAGAZINE DISTRIBUTING BY AUTO.

INDIANAPOLIS, Dec. 4.—A successful experiment was made by the publishers of the *Hustlers' Magazine* in Indianapolis in delivering the city circulation of the publication by automobile. Whether or not the service will be continued has not been determined.

By the use of a Rambler runabout the publishers assert that nearly 2,000 copies of the magazine were delivered about the city in two days. Since the postal authorities required a two-cent stamp on each magazine when delivered within the city by mail, the saving in postage alone amounted to nearly $40.

Besides this economy, the publishers claim that better results were obtained than by mail delivery. The post-office did not forward nor return copies of the magazine mailed to persons who had moved, while with the automobile subscribers who had moved were located and the magazine delivered to them.

It is probable that an effort will be made to maintain the service through the winter, and, if weather conditions compel it to be abandoned, it is said that the idea will be taken up again in the spring.



ARDSLEY ENGINE, SHOWING EXHAUST GAS SHUNT TO LUBRICATING OIL TANK.

Patents

Tilting Steering Column.

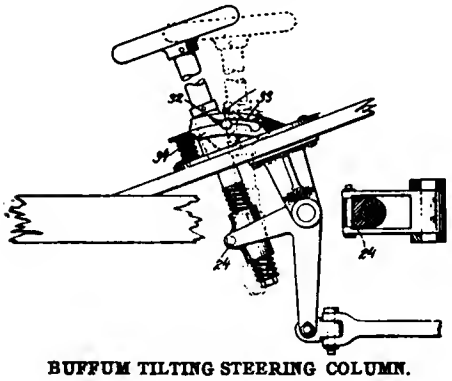
No. 804,375.—H. H. Buffum, of Abington, Mass.

This is a screw-and-nut steering gear in which the steering column can tilt about the pivot *24* as a center when the front wheels point approximately straight forward. The column is locked by causing the projecting pin *32*, attached to it, to engage the notches at the ends of slot *33* in the latching sector *34*.

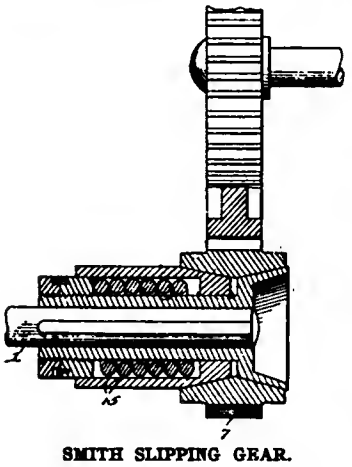
Yieldable Gear.

No. 804,778.—G. W. Smith, of Rockford, Ill.

This is a gear or pinion *7*, connected by



BUFFUM TILTING STEERING COLUMN.



SMITH SLIPPING GEAR.

the friction cones shown with its shaft *1*. The pressure of the spring *15* insures sufficient friction between the cones and the pinion to enable the latter to drive under ordinary circumstances, while permitting it to slip in case of shock.

Pneumatic Tire.

No. 804,613.—F. A. Magowan, of Trenton, N. J.

A tire having several inner tubes, arranged one inside the other, with valves similarly disposed. The outer air tube is first inflated, and when it receives a puncture the next is pumped up. Regarding the method of exposing the inside tubes for the purpose of patching, the specifications are a little indefinite.

Design Patents.

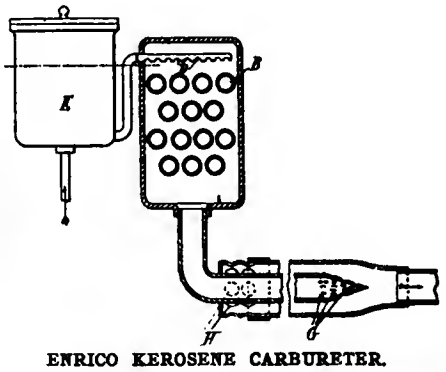
Nos. 37,670 to 37,674.—A. P. Brush, of Detroit, Mich.

A series of patented body designs for automobiles. They comprise a runabout, side-entrance tonneau, coupé and limousine.

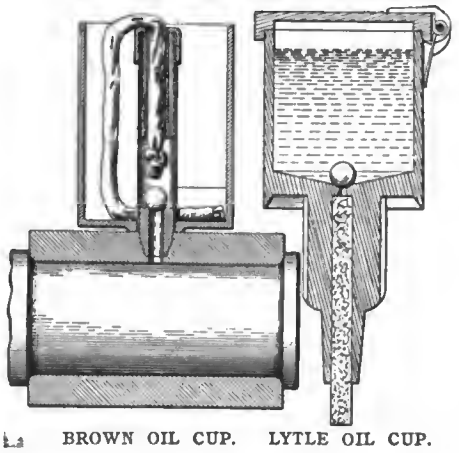
Kerosene Carbureter.

No. 804,589.—G. Enrico, of Torino, Italy.

In this carbureter tbe kerosene is gasified by heat before being mingled with the air. The float chamber *E* has spray outlets *D*, through which the kerosene is drawn by suction, the outlets being just above the normal level of the float chamber. The oil drops down on the pipes *B*, through which passes a portion of the exhaust gas from



ENRICO KEROSENE CARBURETER.



BROWN OIL CUP. LYTLE OIL CUP.

the engine and is thereby converted into vapor. The air intake is at *H*, and the kerosene vapor is taken up by the air as it passes through holes *G*.

Oil Cups.

No. 804,203.—G. W. Brown, of Boston, Mass.

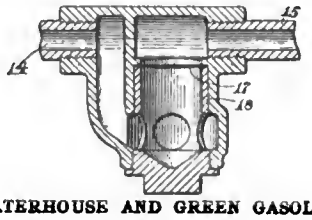
No. 804,612.—H. H. Lytle, of Beaver, and E. D. Cawley, of Allegheny, Pa.

These two oil cups are similar in that the outlet from the cup is in each case closed by a ball, which tends by gravity to find the position shown and is displaced enough by the vibration of the vehicle to permit the passage of oil. In the one device a wick feed is used, and in the other the oil pipe has a felt or wick filler, which prevents the oil from going tbrough too fast. Although intended by the inventors for railway use, they seem to be equally adapted to automobiles.

Gasoline Strainer.

No. 804,284.—H. D. Waterhouse and F. W. Green, of Quincy, Mass.

A device for separating water and sediment from gasoline. Gasoline enters by the



WATERHOUSE AND GREEN GASOLINE STRAINER.

pipe *14* and descends to the pocket below, where water and sediment heavier than the gasoline collect. The gasoline then rises and passes through the screen *17* and out by pipe *15*. The annulus *18* can be unscrewed for the removal of water and sediment, the screen *17* coming out at the same time.

VERMONT REGISTRATIONS.

An up-to-date list of licenses issued for automobiles and motorcycles, just sent out by Frederick G. Fleetwood, of Morrisville, Secretary of State for Vermont, shows that 494 licenses have been issued in that state. The numbers run from 1 to 499, inclusive, but licenses corresponding with five of the numbers were not issued.

Statistics issued by the same authority about April 15 showed 214 licenses, which, by comparison with the latter list, shows an increase of 280 during the past summer, not all of which are new, however, as the new state law did not go into effect until April 15. Of the 494 machines listed 23 are motorcycles.

The Mercedes car, owned by the late Clarence Gray Dinsmore, has been bought by H. Weingand, a Dusseldorf sportsman, who will send the car to the start in European races as frequently as possible next year. Mr. Dinsmore's well-known chauffeur, Werner, the international driver, has just received the Gold Crown Order medal from the German Emperor for driving him in the recent army maneuvers.

Most of the big British automobile concerns have had a successful year. The Argyll and Daimler firms are paying big dividends, and many others have convcrted an adverse balance into a profit. The French Darracq Co. has been floated on the English market recently, and the required capital, totaling $3,200,000 was easily obtained. It is rumored that some of the Darracq cars will be manufactured at a new factory south of London.

THE AUTOMOBILE

VOL. XIII. No. 23

Published every Thursday by

THE CLASS JOURNAL CO.,

Flatiron Building, Madison Square,

NEW YORK CITY.

Cable Address - - - - Autoland, New York
Long Distance Telephone - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2.00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 5 o'clock p. m. Monday for the issue of Thursday following.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies printed in 1904, - - - -	639,300
" " This Issue, - - -	14,000
" " Since Jan. 1, - - -	688,000

Sources of Fuel Supply. Government statistics of the world's production of petroleum recently published show that the output of crude oil and of refined products is steadily increasing, the total in 1904 being 219,162,501 barrels, of 42 U. S. gallons. An analysis of these bulk figures shows that, contrary to popular belief, tbe United States maintains its actual and comparative lead in the quantity of output, its share forming 53.42 per cent. of the world's total in 1904, as against 51.46 per cent. in 1903 and a less percentage in the previous year. Russia, on the contrary, shows a diminishing percentage of the total, for though she produced more oil in 1904 than 1903, her percentages were 35.82 and 38.73 respectively.

The same relative positions are shown in the tabulation by countries of the world's production of refined products, which for all countries is, approximately, the enormous total of 3,025,687,098 U. S. gallons. Of this the United States contributed 73.1 per cent. and Russia only 18.7 per cent. In other words, the United States produced 2.72 barrels of refined products last year for every barrel produced by all other countries in the aggregate.

Automobile interests are peculiarly interested in this question of petroleum output—not so much the individual user, perhaps, as the manufacturer. In this connection, it is not unusual for the autoist to consider the output only in connection with the supply of fuel—gasoline. There are other uses of petroleum or its refined products, however, which are quite important to the trade. For engine lubrication and for the solution of the dust problem on country roads, mineral oils are essential. The high cylinder temperatures of the explosion motor prohibit the use of animal or vegetable oils in the lubrication of the piston and walls, and though other fluids may be used for fuels, there is no known effective substitute for the petroleum lubricants. In the making of roads the beneficial use of a petroleum dressing will be recalled by those familiar with the California roads so treated, or with the practical demonstration on the Vanderbilt cup courses in Long Island.

However, owing to the quantity of gasoline used as fuel in automobile motors, and the fact that it forms only a comparatively small percentage of the bulk of crude petroleum, and that of the finer grades also, the question of fuel supply is a more serious one than that of the other petroleum uses, so far as automobilists are concerned. Kerosene as a fuel differs only in degree and not in kind, as it is also a product of crude petroleum, though a more plentiful one. Bulk figures are apt to be misleading unless it is borne in mind that the area of country in which gasoline producing oils are found is restricted and that the new and large areas of oil land in Texas and California do not materially add to the visible or estimated supply.

Alcohol as a fuel has occupied much attention, especially in those countries which do not produce mineral oils, and for stationary work it seems a valuable substitute for gasoline or naphtha. Its use in the automobile, bowever, cannot be said to have gotten beyond the practical experimental stage. The promoters of the movement to remove the internal revenue tax from denaturized alcohol—alcohol fit for fuel, but not for drinking—seek to enlist the cooperation of the automobile interests, and the Automobile Club of America is already informally on record in favor of the movement. It is asserted by the tax repeal advocates that more gasoline is now used in the operation of stationary internal combustion farm engines than by automobilists, and that, were the tax removed, the farmer would switch over to the new fuel, thus adding enormously to the available supply of gasoline for automobiles without a corresponding increase in the supply of high-grade crude petroleum.

It is entirely probable that the farmer would prefer to use a fuel made out of farm products, but would it necessarily follow that the oil refiners would not cut down the output of gasoline to the level of the decreased demand? Is it not an extravagant supposition, also, that the Standard Oil Company, which controls the market for petroleum products, might engage in the production of alcohol for commercial uses were it satisfied that the supply of gasoline was becoming exhausted? It could not, of course, control the manufacture of alcohol, but its magnificent system of distribution would give it a lead over all other competitors.

There seems to be nothing harmful to automobile interests in the removal of the tax on denaturized alcohol, and it would give American mechanical genius an opportunity to at least keep abreast of foreign motor construction. In the export trade there is likely to be an increasing demand for alcohol motors in those countries in which this fuel is plentiful and untaxed.

✷

Six Cylinder vs. Four Cylinder. Though the six-cylinder gasoline motor is by no means a novelty, the fact that six-cylinder cars are being manufactured by prominent manufacturers at home and abroad as regular 1906 models has brought this type of engine to the attention of the automobiling public more forcibly than ever before, and much discussion pro and con is being indulged in.

Personal preference will probably be an important factor in choosing between four-cylinder and six-cylinder engines. Manufacturers of automobiles of the better class have succeeded in producing thoroughly reliable machines; this most important object attained, they are free to turn their attention to refinements such as smooth running and ease of handling, and the modern six-cylinder engine is an indication of the efforts being made in this direction. The reliability of a motor is not necessarily impaired by increasing the number of cylinders, for no complications are involved; the parts already in use are merely duplicated. It is, of course, true that with six cylinders the opportunities for leakage and loss are greater than with four, and the increased number of bearings and other frictional points might be expected to increase the frictional losses in proportion to the power developed. On the other hand, the power impulses are lighter and more evenly distributed, and therefore the moving parts can be made smaller and lighter and the bearings will share in the general reduction of size. The flywheel of a six-cylinder engine can be made much lighter than the flywheel of a four-cylinder motor of the same power, so that the crankshaft of the six-cylinder motor is relieved of considerable strain from this direction.

A point that has been raised against the six-cylinder engine is that a greater proportion of heat is necessarily lost through the cylinder walls than in the four-cylinder motor. It is impracticable, however, to run any explosion motor without abstracting sufficient heat to keep the temperature of the cylinder down to a point where the lubricating oil will be effective; and the difference in the amount of heat lost in the two types of engine under discussion can hardly be sufficient to seriously outweigh the advantges gained by the flexibility in operation.

The six-cylinder car has the advantage, due to its constancy of torque, of being able to run very slowly on the high gear and of running at all speeds with great smoothness and lack of vibration. When the car is to be used to any great extent where frequent and quick speed changes must be made, as in heavy traffic, it is undoubtedly an advantage to be able to dispense with the trouble and delay occasioned by shifting gears either to increase or decrease speed, and the smooth running of the engine, especially at slow speeds, is certainly conducive to comfort. The user must therefore decide whether the ease of handling and the smooth running of the six-cylinder car will be of sufficient importance to him to outweigh any possible disadvantages due to the increased number of parts.

In the matter of fuel consumption it is not likely that there is sufficient difference between the two types of motor to call for any serious financial consideration on the part of the user, though the subject is of considerable technical interest. More important, from the user's point of view, is the fact that six cylinders require a longer hood than four cylinders, which means that the passenger space of the car must be shorter, or else the wheelbase must be longer than in a four-cylinder car of the same power and capacity. While a moderately long wheelbase is desirable, from the standpoint of comfort and easy riding, excessive length makes the car difficult to handle on sharp turns and in traffic.

The fact that the six-cylinder motor has been considered worth special efforts on the part of well-known manufacturers would indicate that they believe it to possess advantages sufficient to outweigh the additional cost of this construction. The automobilist will doubtless be guided by the conditions under which the car is to be used in deciding whether the extra cost will be compensated for by the smooth running and ease of handling of the six-cylinder car.

The coming Paris Salon will have been shorn of much of its glory by the fact that all the 1906 French models, with but one or two exceptions, have already been shown at Olympia in London. Many foreign automobilists were interested spectators at the London show, and the generally expressed opinion was that the British product had made great advancement during the past year.

The Motor Union of England is endeavoring to serve the industry a good turn by proposing that in cases of dispute between automobilists, recourse shall be made to arbitration, thereby preventing the matter going to the law courts. This should be of great benefit to all parties concerned, and the proposal has been well received by the trade.

The automobile used by H. Deeds, the **Lincoln, Kan.**, rural mail carrier, probably **won't** dare to break down. It is against the **law** to delay the United States mail, **you know.**—Kansas City *Times.*

Megargel and Fassett Leave 'Frisco for New York.

SAN FRANCISCO, Nov. 25.—Megargel and Fassett, in the Reo *Mountaineer,* left this city last Tuesday, November 21, for Los Angeles, on their return trip across the continent by the southern route to New York. They were escorted outside of the city limits by a number of enthusiasts and newspaper men in automobiles.

Their car has stood the 4,500 miles of hard travel very well; even the varnish looks good and does not in any way give the impression of a machine that has fought its way through Nebraska mud and the almost impassable roads of the Cascade mountains. Yet, unquestionably, from the time the tourists leave Los Angeles their past troubles will seem small by comparison with those of the American desert. For four days they will be out of reach of water and beyond the assistance of their fellow men. The prospect is not alluring, but it is possible that they may find this route to be best for the proposed government transcontinental highway for which they are surveying for the American Motor League.

A road across the continent, built and sustained by the government, with easy grades, good bridges and a fine bed, would mean much to the automobile industry, as well as to the country through which it passes. The day is not distant when a great portion of the Great American Desert will be settled; all it needs is water, and there is water that will some day be turned over this arid plain, whose agricultural possibilities are almost unlimited, as the soil is of such a character that it will grow anything that flourishes in a tropical climate.

PALO ALTO, Nov. 21.—The run from San Francisco to Palo Alto is one of the most interesting an easterner has ever made with an auto. Our car took the run around the base of a high hill, the bay on one side and a cliff on the other. The curves were sharp and we were meeting other automobilists and passing rigs all day, but the scenery was magnificent. After finally leaving the vicinity of the bay, the road ran between rows of tall tropical trees—Fassett said they looked like cocoanut trees, but a native informed us they were gum trees. At any rate, they furnished shade and turned what would otherwise have been an ordinary stretch of exceptionally good roadway into a shady avenue that would have answered for the driveway to the palace of a king.

The roads here are oiled and almost entirely free from dust, while they are so level that we have not used our low speed all day. I have been informed that the roads between San Francisco and this place are in reality the poorest we will encounter in the entire 500 miles to Los Angeles. If this is true, California roads have not been overpraised.

Although the month is November, the trees are green, fruit is ripening in the orchards, and flowers, both wild and cultivated, are blooming everywhere. Truly, California, with its fine roads, excellent hotels and delightful climate, is an ideal country for the automobilist to tour in during the winter months. What Arizona and New Mexico will bring forth remains to be seen.

Few makers of automobiles, unless they have actually driven in the city of San Francisco, realize the grades that are to be found there. Almost every street running through the city has from one to five heavy grades included in its length. The street on these grades (in some cases 22 per cent.) is usually paved and the road well kept, making it possible for a powerful hill-climbing automobile to mount, but unless the brakes are of very superior character the descent is extremely dangerous.

I was greatly impressed with the number of automobiles in use in San Francisco. All kinds and makes are found, and two manufacturers are building cars there. Motor bicycles, too, are in great demand, and the city and surrounding country are sprinkled with loud puffing machines of various makes.

Palo Alto is one of the most beautiful towns I have ever been in, and it is a good town for automobiles. It is the seat of the Leland Stanford University. One has to see the buildings and grounds and note the college spirit that prevails before he can fully appreciate the full value of Senator Stanford's gift to the State of California. We rode through the grounds here this afternoon, and visited the chapel, listening to the wonderful pipe organ.

Our coming had been looked forward to by the local automobilists for several days, and our reception was most cordial. This is the city that had upwards of 200 automobiles parked in the vicinity of the athletic field when Stanford University played football against the University of California two weeks ago.

Somewhere between 'Frisco and Palo Alto this afternoon my suitcase was lost off the machine, and no amount of telephoning has succeeded in locating it. Besides all my clean clothing and business suit, it contained a lot of papers, notes, maps, and my barometer, compass, films for the camera, revolver, and other necessary articles. So I feel much like the fellow that went in swimming and had his clothes stolen.

PERCY F. MEGARGEL.

Calvin W. Hendrick, chief engineer, and Samuel M. Gray, Rudolph Hering and F. Stearns, consulting engineers, who are to build Baltimore's great sewage system, are using a Maxwell automobile in going over the ground in Anne Arundel County, where the filtration plant will be erected. Neither electric line nor railroad goes near the vicinity at present.

Cleveland A. C. Road Sign and Guide Book Work.

CLEVELAND, Dec. 4.—The Cleveland Automobile Club, through Assistant Secretary Charles Marvin, is working out a most progressive campaign in the placing of guide posts and the publication of road maps and bulletins showing the most desirable roads and the condition of highways throughout Ohio. It will soon begin the work of erecting sign posts all along the main route across northern Ohio from Fremont to the Pennsylvania state line, a distance of about 150 miles. The thorough way in which this work is being carried out is shown by the fact that 150 posts will be erected on this route, or an average of one to the mile. The signs are placed on independent cedar posts eight feet high and are of heavily enameled sheet steel with blue enamel letters. Arrows indicate the direction to the important cities.

The Toledo Automobile Club has arranged to erect signs along this route from Fremont west to South Bend, while the Automobile Club of Buffalo already has placed similar signs along the route in northern New York state. The signs and posts cost $1.15 each and the Cleveland club pays for the erection and maintenance of the posts in its district. It is the intention to put up another lot of 150 next year on the routes leading to Pittsburg and Columbus.

The Ohio road map which Mr. Marvin is preparing will be the most complete and accurate publication of its kind ever produced, it is claimed. To secure the needed data has been a long and tedious undertaking. Mr. Marvin first wrote to editors of newspapers in all important towns in the state asking for the names of three or four enthusiastic operators in each vicinity. In many cases it required two or three letters to secure even this information. Then personal letters were written to all the persons named asking for detailed information as to roads and routes in all directions out of the town. These elicited a great mass of valuable information, as few failed to reply. Mr. Marvin has personally covered a number of the main routes, and also secured much valuable information from persons who have taken long tours.

Some of the data secured in this manner was remarkably complete and accurate. For instance, from William W. Morrison, a civil engineer at Bryan, O., he received a blueprint drawn to scale and blocked out one-fourth inch to the mile with detailed information as to the route from South Bend, Ind., to Toledo, a distance of 130 miles on the main highway from Chicago to the East. This map is keyed to designate every feature of interest. It shows the character of the road with alternative roads to be used in wet weather, gives locations of hills and curves, points of identification such as churches, schoolhouses, etc., telephone lines and stations of both Bell and Independent systems, steam and electric lines, hotels and restaurants with reference as to their character and charges, and the location of garages, gasoline supply stations, charging stations, etc.

The club rooms of the Cleveland Automobile Club have recently been refinished and renovated and their appearance has been much improved, the rooms being better lighted than heretofore. A large grill room will be completed and furnished this week, and the present grill room will be fitted up as an office, cloak room and card room, giving the club about half again as much space as it had before.

PRIZES FOR GOOD ROADS.

New Jersey Club Proposes Cash Inducements for Supervisors—Club Election.

ASBURY PARK, N. J., Dec. 4.—Monmouth county roads, long considered by automobilists as among the best in New Jersey, will be kept up to their present high standard if the plan of the Monmouth Automobile Club, with headquarters in this city, succeeds. At the annual meeting of the club last week C. R. Zacharias, one of the members, stated that he had urged the Asbury Park Board of Trade to offer prizes of $100, $50 and $25 to the three road supervisors of the county having the best kept roads, the prizes to be an incentive to the supervisors to keep the roads under their charge in the best possible state. The club voted to give the board of trade $25 toward the prizes.

The committee on tours and contests was authorized to erect danger signs wherever necessary in the county as warnings of bad crossings or other dangerous places. The club has already caused finger-boards indicating the direction and distance to different places to be erected at crossroads all over Monmouth county and will now turn its attention to the danger spots.

Another matter that came up was the habit that locomotive engineers have of failing to sound the whistle or bell for street crossings. The secretary was instructed to look up the law covering the subject, and, if a statute which provides for blowing the whistle or ringing the bell at the approach to a crossing can be found, to notify the heads of the railroad companies operating in the county of the negligence of engineers.

The annual election of officers was held and resulted as follows: President, W. N. G. Clark: vice-president, J. P. Hickman; and secretary-treasurer, George W. Pittenger. Through its connection with the Associated Automobile Clubs of New Jersey the Monmouth A. C. has become affiliated with the American Automobile Association.

PLANNING AVALON CLUBHOUSE.

PHILADELPHIA, Dec. 4.—The Avalon Automobile Club of this city is working on plans for a Colonial clubhouse to be erected at Avalon beach on an island off the New Jersey coast. The house is to contain fifteen rooms, of which about eight will be sleeping rooms for members, the others comprising library, dining-room, grill room, kitchen and others. Plans for a garage will be made as soon as the clubhouse plans are finished.

At present Avalon is reached only by the West Jersey and South Shore railroad, but it is almost certain that a turnpike will be built within a year to connect the island with the mainland at a point near Cape May Court House.

The beach on the island is about eight miles long, of which seven miles is almost perfectly straight, the curve being inward from the ends, thus forming a course well suited for auto racing at low tide. The beach will average from 250 to 300 feet in width and is very hard; a hack loaded with five persons leaves a barely perceptible impression in the sand.

NEWS NOTES OF THE CLUBS.

SOUTH HAVEN, MICH.—An automobile club has been organized here, practically all the local owners being included in the membership list.

CINCINNATI, O.—Members of the Automobile Club of Cincinnati enjoyed a smoker on the night of December 2 at the Business Men's Club. Several prominent speakers addressed the members on timely topics.

NEW YORK.—An interesting talk on alcohol as a fuel for explosion motors was given before members of the Automobile Club of America by Whidden Graham at the regular weekly meeting of the club. The speaker, who had made a study of his subject, gave statistics regarding the production of alcohol and gasoline and told of the efforts being made to interest the farmers in the proposal before Congress to remove the tax on denaturized alcohol. Mr. Graham especially advocated alcohol for commercial vehicles, as he said that motors would have to be made slightly larger and heavier for equal horsepower. Tests had shown, he said, that a car can be started on alcohol in half a minute.

BROOKLYN.—The annual election and banquet of the Long Island Automobile Club was set for Wednesday, December 6. Nominations for officers were as follows: President, Alfred Wilmarth; vice-president, Edwin Melvin; treasurer, Charles J. Edwards; secretary, Walter C. Pierson; governors to serve for two years, Frank G. Webb, Dr. C. B. Parker and John H. Manuel, Jr. Prizes were to be presented for the club contests conducted during the past year as follows: President's cup to member bringing in largest number of new club members, to A. C. Pinney or A. R. Pardington, who were nearly tied; governor's cup to member recruiting next largest number; economy contest cup, Dr. C. B. Parker; Mackay meandering cup, for driving in greatest number of states, Charles J. Ed-

AMERICAN AND FOREIGN AUTOMOBILE SHOW AND RACE FIXTURES.

Domestic.

Jan. 13-20—Open Automobile Show, Sixty-ninth Regiment Armory, New York; A. C. of America.
Jan. 13-20—Licensed Car Show, Madison Square Garden, New York; A. L. A. M.
Jan. 22-27—Ormond-Daytona Beach Tournament, Florida; Florida East Coast Auto Assn.
Feb. 3-10—Chicago Fifth Annual Automobile Show, Coliseum Bulding; S. A. Miles, Mgr.
Feb. 5-10—Washington Automobile Show; Washington Auto Dealers' Assn.
Feb. 12-17—Detroit Automobile and Sporting Goods Show, Light Guard Armory; Tri-State Automobile and Sportsmen's Association.
Feb. 17-24—Cleveland Automobile Show; Cleveland Auto Dealers' Association.
Feb. 20-Mar. 8—National Auto Boat and Sportsmen's Show, Madison Square Garden, New York.
Mar. 3-10—Philadelphia Automobile Show.
Mar. 13-20—Buffalo Automobile Show, Convention Hall; Buffalo Auto Trade Association.
Mar. 16-23—Boston Automobile Show; Boston Automobile Dealers' Association.

Foreign.

Dec. 8-24—Paris Automobile Salon; A. C. of France.
Dec. 11-16—International Tourist Congress; Automobile Club of France, Paris.
Jan. 13-25—Belgian Automobile Show, Brussels.
Jan. 17-21—Indian Reliability Trials, Bombay to Mahableshmar; Motor Union of Western India.
Jan. 26-Feb. 3—Crystal Palace Automobile and Motor Show.
Feb. 7-18—Berlin Automobile Show.
Feb. 3-18—Turin, Italy, Automobile Show.
Feb. 9-17—Liverpool Automobile Show.
Mar. 24-31—Cordingley's Fourth Automobile Show, Agricultural Hall, London.

wards; Adams attendance award, for presence at largest number of club meetings, F. B. Stephenson, C. J. Edwards or A. R. Pardington; Mersereau mileage trophy and David J. Post prize for largest number of miles recorded.

TO OIL CUBAN COURSE.

Havana Council Appropriates $5,000 to Improve San Christobal Road.

HAVANA, Nov. 29.—The city council of Havana has appropriated $5,000 toward the expense of oiling and preparing the San Christobal course for the international races to be held here early next year. This and the promise of an appropriation of $2,000 by the provincial council for the same purpose, practically assures the holding of the big races during the late winter or early spring. It is estimated that $7,000 will properly prepare the course, as the roads are in generally excellent condition and do not require much work beyond the oiling to lay the dust.

Dr. Honore Laine, secretary of the Havana Automobile Association, says he has no doubt that the international tournament to be held here will be the largest and most important ever held in the South, not excepting previous Florida meets. Already sixteen owners of high-speed automobiles have signified their intention of attending and participating in the races, and it is believed by Dr. Laine that before the time set for the races he will have received many requests from other automobilists to enter their names. He thinks also that with the encouragement of the merchants, hotels and others of the city who would especially profit by the holding of the races, prizes of a kind worthy of the occasion will be offered, and that many visitors from other countries will be induced to come to Havana.

Ramon Mendez, one of the leading lights of the automobile racing association, who took an active part in the races last year, has resigned from the secretaryship of the association and has been succeeded by Dr. Honore Laine, who numbers his clients by the thousands and has considerable influence.

It is proposed to have the long race start nearer Havana next year, at the site of the Columbia camp, where the American troops were quartered. From there is a long expanse and sweep of excellent road which can be seen for some distance. There is an old ruin, a relic of the war, which would hold the waiting cars with their attendants.

If Albert Clement can obtain a leave of absence from the French army, it is expected that he will cross the Atlantic early next year to compete in the 200-mile road race over the Havana-San Christobal course in Cuba next February. E. J. Conill, of Havana, who has been in New York for several weeks, has secured, through the Sidney Bowman Automobile Company, the 100-horsepower Clement-Bayard racing car that was built for the French elimination trials of last June and driven by Clement in that event and in the subsequent Gaillon hill climb. This car will be shipped direct from Paris to Havana, where it is expected to arrive on January 10. With it Mr. Conill will defend the Havana Municipal Cup, which was won last February in his 60-horsepower Mercedes by Carricaburu over the 160-kilometer course.

Mr. Conill, who is president of the Havana Automobile Racing Association, the organization under whose auspices the Cuban automobile tournaments are conducted, is very anxious to secure the handsome cup again next year, and believes that with this car and young Clement to drive it, he will stand a good chance.

AUTO SERVICE IN MICHIGAN.

DETROIT, Dec. 4.—It is stated that an automobile company in this city is preparing for a great spread in business and intends to put the auto squarely into competition with the railroads, trolley lines and livery stables. The statement is made that the company is now preparing to operate automobiles out of Detroit to the suburban towns and that if the scheme works the plan will be tried in other places. Kalamazoo is booked for an experiment if the company starts its system. Naturally, the progressive and populous southwestern part of the state would afford a fair test. The promoters are R. C. Thompson, of Louisville, Ky., T. E. Hardman, of Chicago, and F. C. Wirschman, of Detroit.

RECENT INCORPORATIONS.

The Roseville Motor Co., Newark, N. J.; capital, $25,000. Incorporators: E. H. Mott, Henry Tetlow, George M. Barner.

Triumph Motor Car Agency, New York; capital, $15,000. Directors: C. E. Zimmerman, O. C. Carpenter, H. P. Heath.

Blackall & Baldwin Co., New York; to manufacture electric motors; capital, $50,000. Directors: A. S. Adams, W. H. C. Lee and F. S. Blackall.

Prospect Construction Company, Brooklyn, N. Y.; to conduct a garage; capital, $6,000. Directors: W. C. Damron, H. B. Hill, J. W. F. Ehlers.

Penn Auto Supply Co., Boston, Mass.; to deal in auto supplies; capital, $10,000. President, H. W. Knights; treasurer, W. J. Foss; clerk, A. W. Knights.

McKinley Motor Car Co., Rochester, N. Y.; manufacture motor cars, etc.; capital, $20,000. Incorporators: S. R. Snook, A. H. Sowers, E. H. Lapp, G. H. Smith.

American Generator Co., New York; to manufacture vehicles and motors; capital, $100,000. Directors: H. C. Cryder, Townsend Morgan and W. M. Seabury.

American Continental Caoutchouc Company, Chicago, Ill.; capital, $10,000; manufacturing tires. Incorporators: Harrison Musgrave, J. B. Gascogne, J. H. S. Lee.

The Fort Worth Automobile Co., Fort Worth, Tex.; capital, $10,000. Incorporators: M. R. Sanguinet, A. B. Wharton, C. D. Reimers, W. W. Sloan, Jr., F. R. Hedrick.

Macnaughton & Du Broy, Inc., Buffalo, N. Y.; manufacture motors, engines, automobiles, etc.; capital, $10,000. Incorporators: James Macnaughton, F. L. Du Broy, M. D. Ashford.

The Turbine & Locomotive Car Company, Newark, N. J.; capital, $500,000. Incorporators: Stacey Wilson, Robert J. Keith and A. G. Mabee. The company is to manufacture engines and vehicles of all kinds.

The Correspondence School of Automobile Engineering, New York City; instruction in automobile engineering; capital, $30,000. Incorporators: R. E. Olds, R. M. Owen, Victor Lougheed, R. H. Montgomery.

The Babcock Electric Carriage Co., Buffalo, N. Y.; manufacturing automobiles, etc.; capital, $100,000. Incorporators: Frank A. Babcock, Frank L. Bapst, Harry Yates.

Calvert-Zusi Auto Co., Newark, N. J.; general automobile business; capital, $20,000. Incorporators: C. S. Calvert, L. B. Zusi, Edward Zusi.

New Detroit Company to Build Air-Cooled Cars.

DETROIT, Dec. 4.—Under the name of the Aerocar Company, a new concern has been organized in this city for the manufacture of automobiles to be called Aerocars, doubtless from the fact that they are to be driven by air-cooled motors. A large factory that is to be completed in forty days is already half completed; an initial output of 500 touring cars for 1906 is contemplated, and space at the New York shows has been taken for the display of the new machines.

Details of the personnel of the company and the origin of the car that is to be built are just now available for publication. At the head of the new company is Alexander Y. Malcomson, a wholesale and retail coal dealer owning large establishments in Detroit and Toledo. The Ford Motor Company, of which he is still treasurer and a director, was financed by Mr. Malcomson. M. O. Reeves, of the Reeves Pulley Company and Reeves Machine Company, of Columbus, Ind., will manufacture and supply the engines, of which he is the inventor. He has built for his own use several automobiles embodying ideas of his own. His first car, driven by a pair of vertical two-cycle gas engine cylinders, was built in 1898. Two years ago he evolved the Reeves air-cooled four-cycle motor, which he has tried out in two sizes, each having four four-cycle vertical cylinders arranged tandem, with a cooling fan in front.

One of the officers of the new concern is Walter G. Morley, formerly purchasing agent and advertising manager of the Olds Motor Works, with which he was associated for seven years up to the time the Detroit plant of that company was removed to Lansing, when Mr. Morley remained in Detroit because of his other interests here.

The mechanical superintendent will be E. J. O'Hagan, for seven and a half years with the Winton Motor Carriage Company, of Cleveland, and for the past year connected with a large concern in the East building air-cooled automobiles. Chief draughtsman will be C. Pfahler, for the last three years employed by automobile manufacturers in the East. H. H. Thorpe, who retires from a similar position with the H. H. Franklin Manufacturing Company, of Syracuse, will be the general sales agent.

The factory that is being erected is located at Mack avenue and the Michigan Central Belt Line railroad. It is more than 400 feet long, facing on the railroad, and when completed will practically occupy the entire block. Already the power plant is almost ready for the roof, and the company feels confident that the factory will be in full operation early in January. It will be modern in every respect, with up-to-date automatic machinery and electric drive. The building is of mill construction, with steel columns and girders. The main building will be divided into four sections by brick fire walls extending to the roof. The power plant will be in an annex at one end, where will be installed a 250-horsepower engine. The general offices and operating departments will be on the ground floor, and the drafting room will be on the second floor in front. Two electric elevators, 11 by 18 feet, will communicate with both floors. There is to be an automatic fire sprinkler system. Contracts for the construction of the plant specified that it was to be finished in forty days, and in the first five days 1,800 feet of foundation walls was laid.

SHOW TELEPHONE EXCHANGE.

Largest Private System in the World to Be Installed for Garden Exhibition.

A welcome innovation in automobile show arrangements will be the installation of a complete private switchboard system for the Madison Square Garden show next January. There will be 150 individual telephones located in different booths and a switchboard with positions for eight operators. Sixty-five trunk lines will connect the Garden system with the Madison Square telephone exchange, which exceeds the number from the Waldorf-Astoria, which has heretofore had the largest private exchange.

Twenty-three employees will be required to handle the service; there will be a manager, two supervisors, eight day operators and seven night operators, with two relief operators and three messengers. It is expected there will be more than four thousand telephone calls every day during the show.

With this system in operation, it will be possible for each exhibitor at the show to telephone to other exhibitors, or to his office, albeit it is 1,000 miles away. There will be a special telephone directory for the Garden exhibitors.

BANKER BROS.' ENLARGED PLANT.

PITTSBURG, Dec. 4.—The Banker Brothers Company has moved into its new garage addition, its total floor space now being 50,000 square feet. In its storage department are three rooms, 40 by 115 feet each, one for electric cars, one for large gasoline machines and one for light gasoline touring cars, and a car and tire repair shop and a stockroom. Porters take care of the cars in active use. There are nine repair pits, five wash-racks and twenty charging-boards for electrics. In the vulcanizing plant twenty tires can be revulcanized at once. Forty expert chauffeurs who work for patrons of the company have been given a fine, large reading and pool room on the second floor.

The company has a big department for the manufacture of special parts, including bodies, tops and glass fronts, and has woodworking, painting and trimming rooms. More than 3,000 electric lights are used in illuminating the building and signs. To secure absolutely pure water the company drilled an artesian well 300 feet deep. It now has seventy-six employees. Arthur L. Banker, president of the company, is in active charge of the plant.

PLANS FOR MEXICAN ENTERPRISE.

Ambitious plans for supplying Mexico with automobiles of the Mercedes, Panhard and other types in large numbers built in a plant to be erected near the City of Mexico, were made public on November 20, in the Mexican capital, in conjunction with the announcement of the granting of a concession by the government to L. C. Browne for the establishment of such an industry.

Under the name Mexican Automobile & Bicycle Manufacturing Company, some of the most prominent and wealthy men in Mexico City have organized to conduct the enterprise and have applied for a charter under the laws of Delaware. It is expected that the construction of a factory will be begun shortly, and by the terms of the concession the company guarantees to invest not less than $150,000. The plant, it is declared, will embrace about fifteen buildings and have a large capacity—estimated at ten autos and ten bicycles a day. The machinery will be electrically operated.

By manufacturing in Mexico the high duties will be avoided, enabling the company to produce the machines at nearly 50 per cent. less than the imported cars now cost. Aluminum bodies are to be built from native metal made by a new company that recently began operations in Mexico, and it is also intimated that tires may be made from native rubber.

Skilled mechanics are to be taken down to Mexico from the United States and Europe. The general manager and superintendents of the automobile and bicycle departments are also to be engaged here or across the Atlantic. A complete repair shop is to be a feature of the enterprise, and the plans are reported to embrace also the operation of an electric cab service in Mexico City.

BODY COMPANY EXPANDING

PONTIAC, MICH., Dec. 2.—A reorganization of the Pontiac Body Company has been effected, and with the completion of improvements now in progress the company will be able greatly to increase its output. For the season of 1905-'06 it now has orders on its books for $170,000 worth of work, and, altogether, the coming season promises to be a banner one.

R. F. Monroe, who held controlling interest in the company, and also the position of general manager, has purchased the interests of Chauncey Brace, H. F. Messenger, J. A. Jacobes, J. A. Graley and Albro Green. In the reorganized company Mr. Monroe has associated with him D. E. Strohn, superintendent of the factory, and John Parker, bookkeeper.

The company has five big contracts which alone will give sufficient business for the coming season. They are with the Cadillac and Blomstrom companies, of Detroit, the Buick Motor Company, of Flint, the Bartholomew Company, of Peoria, Ill., and the Lebanon Motor Works, of Lebanon, Pa. In addition the company has several smaller contracts, including those with the Welch and Rapid Motor companies, of this city.

Factory improvements now being made include a new power house, 35 by 28 feet in size, and a new boiler and engine, the latter of 200 horsepower. Plans for installing a new electric dynamo to furnish lighting current for the factory are also nearly completed.

In regard to a rumor that the Pontiac Body Company was about to become a branch of the Cadillac Motor Car Company, of Detroit, Mr. Monroe, manager of the company, declares it to be untrue.

WASHINGTON SHOW IN FEBRUARY.

WASHINGTON, D. C., Dec. 4.—The week of Feb. 5 to 10 has been selected for the Washington automobile show, and sanction has been granted by the National Association of Automobile Manufacturers. This date is a full month earlier than that of past exhibitions in this city, and conflicts with the date of the Chicago show—February 3 to 10—but the local dealers think that the earlier date will add two months to the coming season.

A review of the past season shows more than 500 actual sales of automobiles in the national capital. This is a very large number for this city, but the indications are that 1906 will see the sales reach 1,000. This statement may seem optimistic, but when one dealer puts in his order for 300 runabouts of one make—and all the other dealers will sell some—it may not be far wrong.

TRADE ASSOCIATION PLANS.

New Philadelphia Organization Embraces 85 Per Cent. of Local Companies.

PHILADELPHIA, Dec. 4.—The amalgamation last month of the two local automobile trade associations was a stroke of business policy which will in all likelihood redound to the advantage of all concerned. The new organization embraces 85 per cent. of the automobile and accessories dealers doing business within the boundaries of Philadelphia county and representing nearly all the high-grade cars built in this country.

The combination will be continued under the name of the older body—the Philadelphia Automobile Trade Association—and will in the future transact its business from a central headquarters to be established within the coming week, which will be in charge of a permanent secretary, who will be prepared at all times to furnish information to visiting tradesmen and tourists. Here will be kept on file all the automobile trade literature, route information, etc., useful to car owners. It is intended, indeed, to make the headquarters an automobile trade club, and with that object in view a location will be selected within easy walking distance of Automobile Row, if not on the Row itself.

Officers to be elected at the annual meeting of the association have been nominated as follows: A. E. Maltby, to succeed himself as president, W. F. Smith for vice-president and J. Morse for secretary-treasurer. For the Board of Directors there were nominated W. F. Smith, Rambler; L. E. Hoffman, Ford; Samuel Cohen, Reo; and Percy L. Neel, of the Quaker City Automobile Company. The election will be held next Tuesday night, and, of course, the entire ticket will go through, only one set of candidates having been named. With the exception of President Maltby, all the officers are new men.

The first step toward the next local show has been taken by the appointment of the following committee to manage the affair: W. C. Barrows, W. F. Smith, W. J. Foss, John A. Wister and Percy L. Neel. A sanction for March 3 to 10 has been applied for, those dates having been selected after a long discussion. The question of where the show is to be held is practically settled. It having been demonstrated that none of the armory buildings is equal to the demands for space which will be made, it was decided to secure the National Export Exposition Building at Thirty-second and South streets, West Philadelphia. This building is more than twice as large as any of the armories, and being on the line of the Pennsylvania railroad, at South street station, is advantageously located for out-of-town exhibitors, who can land their cars and cases practically at its doors. This building was used by the convention that nominated McKinley and Roosevelt, and the crowds on that occasion were handled with surprising rapidity and dispatch by the transportation lines.

The decision of the association to hold the next annual automobile show in the National Export Exposition building in West Philadelphia, was received with satisfaction.

As at present constituted, the Philadelphia Automobile Association includes the following concerns:

ACTIVE.

Acme Motor Car Co., Apperson Bros. Co., Autocar Co., H. Bartol Brazier, Fairmount Engineering Works, Ford Motor Car Co., Foss-Hughes Motor Car Co., Gawthrop & Wister, Thos. B. Jeffery & Co., Kelsey Motor Car Co., Keystone Motor Car Co., Locomobile Co. of America, Martin & Hart, The Motor Shop, Pennsylvania Electric Ve-

OLDSMOBILE AGENTS BOARDING SPECIAL TRAIN AT LANSING, MICH., TO ATTEND MICHIGAN-WISCONSIN FOOTBALL GAME ON NOVEMBER 18, ON THE OCCASION OF THE RECENT GATHERING OF AGENTS TO INSPECT THE NEW OLDS MODELS.

hicle Co., Quaker City Automobile Co., Reo Motor Car Co., White Sewing Machine Co., Winton Motor Carriage Co.

Associate.

Diamond Rubber Co., Fisk Rubber Co., J. L. Gibney & Bro., Hartford Rubber Co., F. K. Mears, Pennsylvania Rubber Co.

MAY DISPOSE OF YALE RIGHTS.

TOLEDO, O., Dec. 4.—Negotiations are pending whereby the Yale cars, now manufactured by the Consolidated Manufacturing Company, of this city, may be taken over by another concern and built in a factory devoted entirely to the automobile business. Several offers have been made, it is said, both by out-of-town and local companies.

The Consolidated Manufacturing Company at present employs upward of 600 men in its automobile and other manufacturing departments, but owing to a lack of room and the large amount of business the company has in other lines, it is willing to dispose of its automobile department, providing a satisfactory deal can be made, and it appears that one is near at hand, according to the statement of the general manager. The loss of the plant to Toledo would be felt, for the Yale machine is popular in this city and in northwestern Ohio.

Even though the Consolidated company disposes of the Yale automobile, it will continue to make automobile castings, in which it now has a large business.

TO ABANDON AUTO BUILDING.

INDIANAPOLIS, Dec. 4.—It was announced by an official of the Standard Wheel Company here to-day that this company would no longer engage in the manufacture of automobiles. The company has made the Overland car, and the announcement came as something of a surprise to those interested in automobiles in this city.

The company has been manufacturing automobiles for three years, and it was supposed that it would have a new model on the market for next year within a few weeks. No reason is given for the decision except that the company feels that it should devote its efforts to the manufacture of wheels.

It is said that the company still holds the rights to the Overland and also a quantity of material, but that it has not been decided what will be done with either.

Eddie Bald was guilty of an atrocious pun on his own name recently. While it is a fad with most drivers to ride bareheaded, Eddie persists in wearing a cap. He was testing a new Columbia chassis on the roads outside of Hartford the other day, when he was held up by some acquaintances, and, in the course of the talk that ensued, Eddie was asked why he always wore a cap. After carefully making ready to throw in his clutch for a quick get-away, Eddie tossed back the response: "Oh, because I'm Bald."—New York *World*.

News and Trade Miscellany.

A circular sent out by the Automobile Club of America calls attention to the fact that the official program of the annual automobile exhibit of the club will be published by the Exhibition Committee for general distribution *without charge* to all who visit the show; that it will contain a complete list of all exhibitors, with names and addresses, location of their exhibits and floor plans of the Armory, and that the program will contain no advertising matter of any kind.

August Hemery, winner of this year's Vanderbilt Cup Race, who was suspended for a year by the Automobile Club of France, has, according to an authoritative report, been reinstated after making apologies.

B. L. Brown, who has had charge of the electric work in the Standard Automobile Company's big plant in Pittsburg for several years, has organized the B. L. Brown Company and leased the garage at Baum and Beatty streets now occupied by the Hiland Automobile Company, which will soon move to its new garage in Center avenue. The Brown Company will take over the Pope-Waverley agency which the Standard has had, as that company is going out of the electric business. Mr. Brown will handle nothing but electrics.

A "good roads" wave is sweeping over Oceana County, Mich. A few days ago a check for $1,250 was received from the state by Shelby township as the state's share of the cost of a mile and a quarter of stone road built during the past season. Recently a "good roads" meeting was held at the Crystal Town Hall and the proposition of adopting the township road system was considered. The voters of Benona township are considering a proposition to bond the township for $10,000 for the purpose of building four miles of macadam highway. During the year 1905 nearly $35,000 has been expended by the several townships and villages in the county for road improvement.

It is announced that Paul Stamsen and Harry Lowes, of Muskegon, Mich., will make the trip from there to San Francisco, Cal., this winter by motorcycle. The two will start about January 1 from Muskegon, and will make the trip via Chicago. From Chicago they will take a southwest route to avoid the severe storms which would be encountered in a direct western course. The route will take them through Missouri, Kansas, Colorado, New Mexico, Arizona and California. The men will be employed by a motorcycle manufacturing company, and expect to make the trip in thirty-five days.

During a large fire in the downtown business district of Indianapolis, recently, an extraordinary pressure at the water pumping station resulted in the bursting of a 36-inch water main in one of the downtown streets. Dr. T. A. Wagner was driving his automobile over the place at the time the main burst, and without warning his car was raised by the pavement as it was forced up by the water, but almost miraculously the car passed the dangerous place in safety.

The Elston Automobile Company, of Indianapolis, has closed its establishment and S. W. Elston has accepted a position as manager of the Indiana Automobile Company. Mr. Elston is one of the best-known automobile men in Indianapolis, having been one of the pioneer dealers in autos in that city. During the past season his company had the agency for the Maxwell line, but this agency has been given to the Fisher Automobile Company and the Indiana Automobile Company has completed arrangements for the Indiana agency for the Oldsmobile, which was recently relinquished by the Fisher company. The Indiana company will also carry the Cadillac, Winton, Franklin and Autocar next season.

That the motor truck is gradually being adopted in place of horse-drawn vehicles by business houses is shown by the recent sale of Packard trucks to the Standard Oil Company, of Chicago, and to Schwarzenbach, Huber & Co., silk merchants, of New York. The sale to the former company was made after a thorough investigation and demonstration of the truck. Two western firms who have recently adopted motor vehicles as delivery wagons are The Emery, Bird, Thayer Dry Goods Company and the Jones Dry Goods Company, both of Kansas City, Mo.

The Standard Roller Bearing Company, of Philadelphia, has purchased the property of the Pennsylvania Iron Company, at Forty-ninth street and Merion avenue, which adjoins its present property. The property purchased includes a four-story brick building, into which the company will move its ball bearings, axle and brass foundry departments. The company is at present erecting a foundry for making crucible steel castings.

Michelin & Cie., of Paris, makers of the Michelin tires, have established an American agency at 6 West Twenty-ninth street, New York, under the name of the Michelin Tire American Agency, Inc.

The French Aero Club has received word from James Gordon Bennett, donor of the cup for the international automobile races, offering a trophy for the annual international balloon contest.

It is expected that A. N. Mora, of Rochester, N. Y., will soon start an automobile factory employing sixty skilled workmen, in the village of Newark, if a proposed agreement whereby the Newark Board of Trade will raise $1,000 toward paying the rent of a factory for one year is concluded. Carpenters have already begun overhauling an old factory to put it in shape for Mr. Mora.

The L. W. Pond Machine and Foundry Company, of Worcester, Mass., which has for years manufactured metal planers, announced last week that the entire plant of the company will be given over to the manufacture of commercial and pleasure automobiles, a line of sample cars to appear within two months. The company is to be well represented at the New York and Boston shows.

The Marysville Motor Co., of Marysville, O., has been organized to manufacture automobiles. Officers of the new company have been elected as follows: H. A. Stevenson, president; George Rausch, secretary, and L. T. Henderson, treasurer. Harry Tarkington, who was superintendent of the Sommer Company's factory at Detroit, will be manager.

Farmers between Mechanicsburg and Urbana, Ohio, are circulating a petition which will be presented to the county commissioners, asking that the roads be closed to automobilists. They allege that their horses become frightened at the machines and that it is with difficulty that accidents have been averted.

A number of Twin City automobilists have used wood alcohol in the circulation system during the cold weather this fall, and report great success with the liquid as an anti-freeze. Owners of Maxwell cars have been especially pleased with the results.

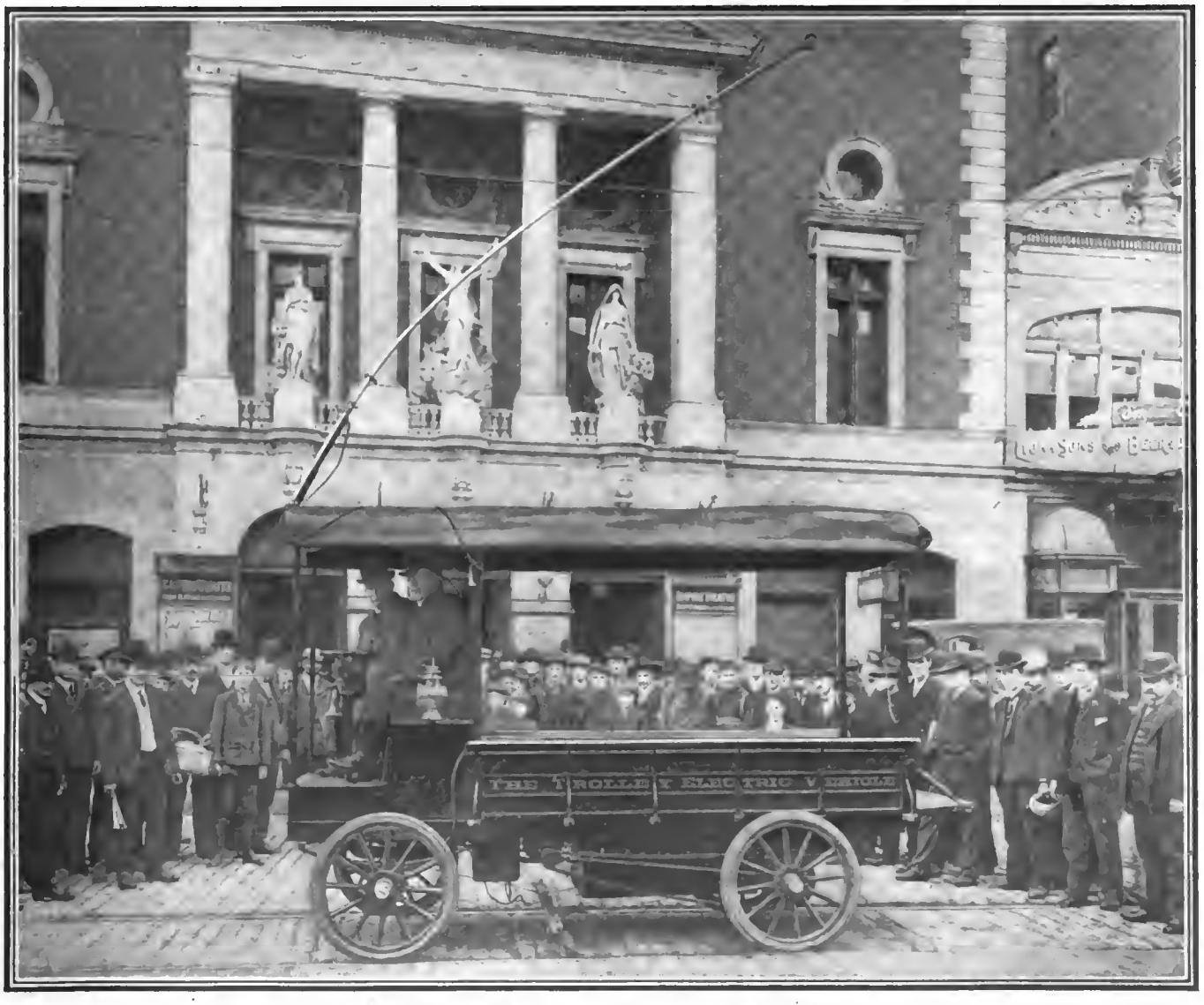
THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, DECEMBER 14, 1905—CHICAGO No. 24

ELECTRIC VEHICLES FOR SEMI-PUBLIC SERVICE.

PHILADELPHIA, Dec. 11.—A departure in the construction and operation of automobile industrial vehicles that may soon open up a new and very broad field of usefulness for electric vehicles is illustrated in the accompanying photograph. Briefly, the express wagon is equipped with trolley pole and special electric motor for using the high-power current from the overhead feed wires of the street railway companies, in the streets where these wires exist, and is also provided with the storage battery and low-power motor ordinarily employed in electrically propelled automobiles, so that it can be operated under self-contained power in streets where there are no street car wires.

The system, which is the invention of



ELECTRIC WAGON, BUILT TO RUN ON CURRENT FROM TROLLEY WIRE AND INDEPENDENTLY ON STORAGE BATTERY CURRENT.

Russell Thayer, of Philadelphia, was designed primarily for use in connection with local package delivery and express business. Its use is not restricted to these purposes, however, the fact having been demonstrated that it is equally effective for a repair or emergency wagon for trolley and electric light companies in large cities, for a sight-seeing car ambulance, police patrol and for post-office service. Rather exhaustive tests in this and other cities have demonstrated its general adaptability in the collection and delivery of mail and have shown safety, reliability and a large percentage of time saved, it is claimed.

It is probable that extensive use could be made of passenger 'busses built on this system, by street car companies for extending their service into sections of cities where car tracks have not been laid and in streets that have inadequate service or that are too far from regular lines. A great advantage of the system is that the vehicle would not be affected by traffic delays; in case of a blockade of street cars it can at once abandon the overhead wire and proceed independently around the blockade—if necessary, as in case of a fire—by a circuitous route. Rails are entirely unnecessary for its operation, and it is easily conceivable that in small towns where it might be inadvisable to go to the heavy expense of laying a system of car tracks a power house and overhead wires could be erected and a system of "trolley electric" 'busses operated, with ramifications into the side districts under storage battery current.

As yet only some such semi-public fields of usefulness as outlined for the new vehicles can be seen by those interested in the invention, as anything like a general adoption of such a system of delivery by large department stores and others, for instance, would at present prove too great a tax upon the trolley companies' power houses, not to mention the delays to transportation such a course would be certain to create, owing to overcrowded tracks. Manifestly it would be impracticable just at present to place such a vehicle on the general market, but it is understood that some system of determining and charging for the exact amount of current used could be adopted and the field widened to a limited extent.

However, in actual tests this vehicle has shown such a flexibility and ease of manipulation, with such a low cost for maintenance and repair, that it would seem that, even restricting its use to baggage and package delivery, trolley and electric light repair service, sight-seeing purposes, post-office work and such public or semi-public utilities, would open a sufficiently wide field of usefulness for it as to keep the builders busy for years to come. Construction of the vehicles in numbers is about to be begun by the Trolley Electric Vehicle Company of America, having headquarters in the Drexel Building, Philadelphia.

The vehicle shown in the illustration was built by the Lansden Company, of Newark, N. J., and the usual lines of a one-ton express wagon body were adopted merely because express, baggage and package delivery is expected to be the principal field of the wagon's usefulness. The chassis is an independent unit and the entire driving gear is mounted upon it.

The vehicle is provided with two electric motors, one a 500-volt motor to use the overhead current, and the other an 85-volt motor using current from the storage battery. The mere lowering of the trolley pole automatically cuts out the big motor and switches in the storage battery and the small motor. The battery and its motor give the wagon a radius of thirty miles of independent action, so that when it is stated that in actual service in large cities the vehicle has run 75 per cent. of the total distance traveled upon the trolley tracks, it may be seen that one charge of the battery would be sufficient for considerably more than 100 miles of travel. But any possible delay in this connection is obviated by a system of charging while in transit, which practically makes the vehicle constant in service.

Each motor is connected by a chain and sprockets through a differential gear to a countershaft which drives by two chains the rear driving wheels. Close to the operator's hand is the lever which controls the two currents—the 500-v. from overhead and the 85-v. from the storage battery. The speed-controling apparatus permits of three speeds ahead and two reverse from the storage battery, and six ahead and four reverse from the overhead wire, and a switch is arranged to effect alternately the operation of the motors. The closing of the trolley circuit opens the battery circuit, and *vice versa*, and the vehicle is driven by either current without change of speed.

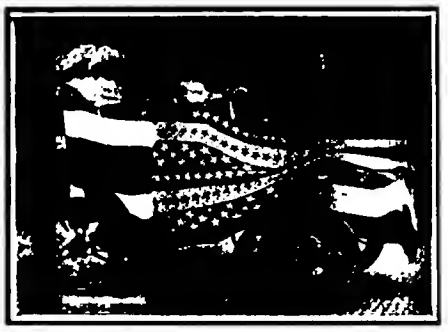
The circuit from the overhead wire is not completed through the wheels to the rails, as in street cars, since the wheels are shod with solid rubber tires, but through the medium of metal shoes or slides composed of copper chains or wires, which rest upon the tracks. When the vehicle leaves the trolley tracks and the trolley pole is lowered, these shoes are raised from the ground and are not again lowered until the car tracks are reached once more.

To insure easy turning off the tracks, the tread is so arranged as to be slightly in excess of the standard trolley width, one wheel running in the track, the other on top of the flange. If the off wheels are in the track, a turn to the right is effected with one motion; a turn to the left is accomplished by first turning to the right sufficiently far to bring the off wheels out of the track and then a slight turn of the steering wheel enables the off wheels to mount the flange.

The batteries are slung under the chassis frame, well out of the way, and sufficiently high to clear any ordinary street obstacle. A powerful foot-brake acts upon the inner side of the rear hubs. As only a small battery is required, the weight of the wagon is kept well within the limits of a steam or gasoline vehicle designed for similar work, while the ability to charge the battery from the overhead wire while in transit materially reduces the cost of maintenance and avoids delay.

NOVEL DECORATED CAR.

Much ingenuity and artistic ability have been displayed from time to time in the decoration of automobiles for parades in different cities of the country, but the car shown in the accompanying engraving was unique in the matter of operation. The inventiveness of its owner, N. A. Wolcott, of Warren, Ohio, was recognized when he was awarded



BLUE RIBBON WINNER IN WARREN PARADE

the blue ribbon for first prize in the night carnival of the Warren home week celebration last fall.

The machine was an Olds curved-dash runabout, so arranged and draped as to convey the impression that the owner's little son, aged eighteen months, was steering the machine. So effective was the disguise that many spectators actually thought the child was in full control, and many of the remarks heard by the owner during the parade were ridiculous in the extreme.

For the occasion a tonneau seat was fitted behind for the two little girls, aged four years, and the car was built out in front so that the owner could lie comfortably on the foot mat and be entirely concealed by the flags and bunting. Steering was accomplished by means of an eight-inch tiller that temporarily replaced the regular tiller. The throttle was operated by the knee.

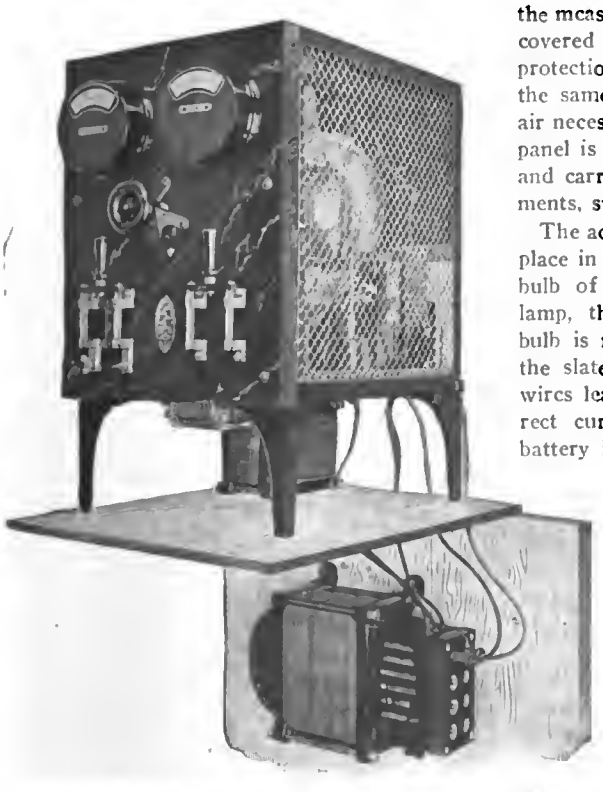
A demand for American motors, chiefly of the two-cycle type for boats, is reported by U. S. Consul Mowrer, of Ghent. He writes that the use of power boats in Belgium is constantly increasing, especially in Flanders, where the canal system is extensive. Among the motors especially in demand are the Wolverine, Truscott and Lozier. In the larger powers the motors used are usually imported from France. The Consul suggests the establishment of an agency in which a stock of motors would be kept and where practical demonstrations could be made. He names Theo. Albers, rue Basse, Ghent, as a possible agent and who solicits correspondence. This seems like a good opening for motor builders.

Apparatus for Charging Storage Batteries.

AN objection frequently brought forward against the use of the electric automobile is that there are many localities where a direct or continuous electric current, which alone can be used for charging the battery, cannot be obtained. If the owner of an electric automobile in such a locality wishes to have facilities for charging in his private garage or automobile house, he must install some form of apparatus for generating direct current or for converting alternating into direct current; otherwise he must make trips to the nearest point where direct current is available. In cities there is no difficulty, as a rule, in obtaining the proper charging current, but in the outlying districts and in many small places it is often found that only alternating current can be had from ordinary lighting circuits.

There are several methods of converting an alternating current, which consists of a series of current waves passing alternately in opposite directions with a frequency of many times a second, into a direct or continuous current, flowing all the time in one direction. A motor-generator set, consisting of an electric motor driven by alternating current, coupled to a generator producing a direct current, may be used; a rotary converter answers the same purpose. Where no supply of electricity of any kind is available, current can be generated cheaply by installing a generator driven by a small explosion motor—a plan that is frequently adopted with excellent results.

The latest converting apparatus, and the one that seems especially suited to automobile battery charging, is the mercury vapor converter, a device based on the discovery that the vapor given off by mercury when heated will provide a path for the passage of current in one direction only. A converter constructed on this discovery is a static apparatus, having practically no moving parts, and does not require the more or less skilled attention that mechanical converters must be given; it is free from the wear incident to machinery in motion and can be operated continuously without constant attention. These are points that are of great importance from the point of view of the automobilist who is not a skilled electrician, but desires to charge his own battery. The mercury vapor converter is compact and practically self-contained, and can be placed in any convenient position without any special arrangements for installation excepting, of course, the leading in of the alternating current supply wires.



COMPLETE HEWITT MERCURY VAPOR CONVERTER, ON SHELF WITH AUTO-TRANSFORMER BELOW.

A converter of the mercury vapor type, illustrated herewith, is manufactured by the Cooper Hewitt Electric Company, of 220 West Twenty-ninth street, New York. The complete apparatus as illustrated in the engraving is 26 inches high, 15 inches wide and 22 inches deep and is self-contained except for the transformer used to regulate the voltage of the direct current. The transformer may be put in any convenient place near the converter and occupies very little space. The converter is mounted on an iron frame with short legs; all the parts, with the exception of the transformer and the measuring instruments and switches, are covered by a stout wire netting, affording protection against accidental damage and at the same time permitting the free flow of air necessary to keep the parts cool. A slate panel is mounted in front of the apparatus and carries the electrical measuring instruments, switches and regulating handle.

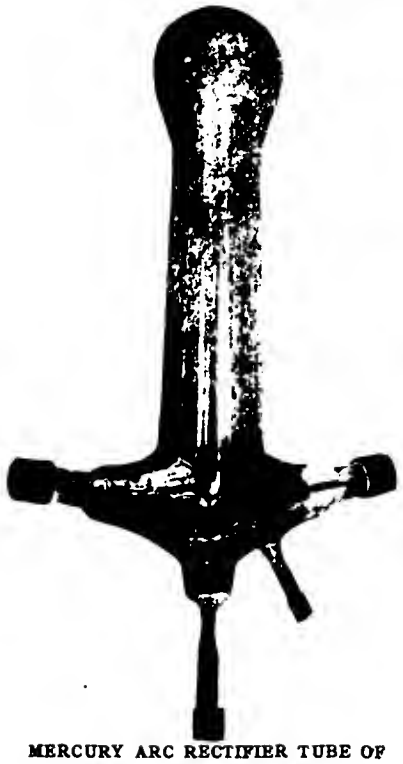
The actual conversion of the current takes place in a glass bulb, shaped much like the bulb of an ordinary incandescent electric lamp, though much larger in size. The bulb is mounted in an iron frame back of the slate panel and the alternating supply wires lead into the top of it, while the direct current required for the automobile battery is taken from the bottom. During the process of manufacture a small quantity of liquid mercury is placed in the bulb; after being exhausted of air as completely as possible by means of a mercury air pump the bulb is sealed. Into the upper part of the bulb are sealed two platinum wires, and two more enter at the bottom; the upper wires end in plain carbon terminals inside the bulb, while the lower ones are in small pockets formed in the glass and are surrounded by mercury in the liquid form. One of the lower terminals is placed at one side and a little above the other.

GLASS BULB OF HEWITT CONVERTER, SHOWING TERMINALS AND MERCURY POCKETS

Without going deeply into the details of the electrical phenomena, which are somewhat complex, it may be said that the upper terminals in the bulb are both positives; the alternating current, led to the positive terminals from the supply mains, is provided with a path by vapor of mercury, produced as explained later, and is thus enabled to pass from the positive terminals to the single negative electrode at the bottom of the bulb, from which it is led in the form of a continuous or direct current, the peculiar properties of the mercury vapor permitting the current to flow from the positive terminals to the negative terminal only. The direct current is still pulsating, though the pulsations are all in the same direction; and it is therefore led through a coil of special form, called a reactance coil, which has the effect of lessening the pulsations and making the current more uniform. A transformer is used to regulate the voltage of the direct current for charging the battery of the automobile.

One of the peculiarities of the mercury vapor apparatus is that the negative terminal, at the bottom of the bulb, offers an exceedingly high resistance to the starting of the flow of current; but once the flow is started, the resistance is comparatively slight. It is therefore necessary to supply some means of breaking down the negative electrode resistance before the current will flow from the two positive terminals at the

top of the bulb to the negative terminal at the bottom. The fourth terminal, near the negative terminal, is used for this purpose, being brought into action by the automatic tilting of the bulb, the tilting being accomplished as follows: The bulb is placed in an iron frame supported on knife edges; from the frame projects an arm carrying on its extremity a rod attached to the core of a solenoid. When the connections are made and the current switched on, direct current from the battery, passing through the solenoid, causes the core to be drawn downward and the bulb to be tipped until the two small bodies of mercury flow together for an instant and then separate, causing an arc or "flash," which heats and vaporizes a small portion of the mercury and breaks down the negative electrode resistance. As soon as the alternating current commences to flow through the conducting vapor the solenoid is automatically cut out of the circuit and the bulb drops back. If the converter does not at once start working the tipping is automatically repeated until it does; if, however, action starts at once the tipping is not repeated until another interruption to the flow of current from the positive terminals to the negative terminal takes place. Thus, if the converter is used for charging an automobile battery, it may be started in the evening and left to itself; if for any reason, such as the temporary cessation of the supply of alternating current, the converter stops work, the automatic starter will come into play as soon as the current supply is resumed and charging will recommence. When the battery is fully charged, so that the resistance to the flow of direct current is equal to the pressure, so to speak, of the direct current supply, the converter will cut itself out automatically, opening all the circuits, so that there will be no wasteful flow of current from the feed wires and the battery cannot discharge itself back through the converter.

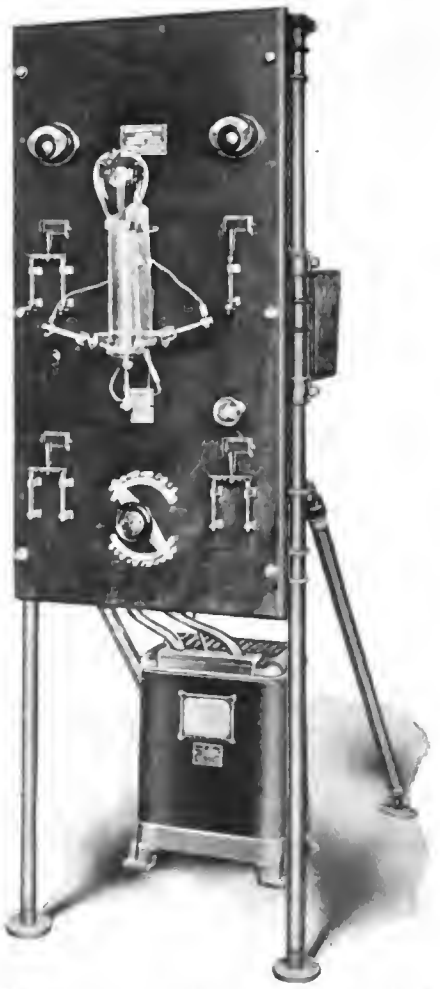


MERCURY ARC RECTIFIER TUBE OF GENERAL ELECTRIC SET.

The heat generated by the passage of the current through the vapor while the converter is at work is considerable, and, in order to prevent the vaporization of too much of the liquid mercury in the bottom of the bulb, the bulb is made of considerable size, so that the cooling surface exposed to the air will be sufficient to condense the excess of vapor, which returns by gravity to pockets surrounding the lower terminals.

The type P. A. Hewitt converter is made especially for charging automobile batteries from a single-phase alternating current supply, and the standard design provides for 30 amperes direct current with a direct current voltage of from 80 to 115. Special outfits can be supplied giving lower or higher voltages, the highest not exceeding 240 volts. The regular outfit can be used with either 110 volts or 220 volts alternating current supply. A good method of installing the converter is to set it on a shelf at a convenient height, with the transformer under the shelf.

The converter manufactured by the General Electric Company, of Schenectady, N. Y., and 44 Broad street, New York city, is called a mercury arc rectifier; though involving the same fundamental principles as the Hewitt apparatus, it differs considerably in detail and general form, as will be seen by the accompanying engravings. The glass bulb is comparatively high and of small diameter; the lower part is enlarged and contains the positive electrodes, one on the right and one on the left of the enlarged part, while the negative electrode and the starting electrode occupy the same relative positions as in the Hewitt instrument. The upward extension of the bulb is used as a condensing chamber for the mercury vaporized by the heat generated in the passage of the current. The bulb is mounted in spring clips in the center of a black slate panel supported on an iron pipe framework; around the bulb are grouped the electrical measuring instruments and the necessary switches, the regulating handle and the pilot lamp. A compensating reactance, by means of which the current supply is regulated and controlled, is connected across the alternating current supply mains; it may be mounted on the back of the panel or placed on the floor under the panel. The controlling handle is on the panel, near the bottom. The apparatus being self-contained, it can be installed anywhere without special preparation. The slate panel is 48 inches high, 24 inches wide and 1 1-2 inches thick; the total height, including the 1-inch pipe supports, is 76 inches. A starting resistance, mounted on one of the pipe supports, permits the rectifier to start before the load is thrown in; as long as the starting resistance is in the direct current circuit a pilot lamp,



GENERAL ELECTRIC MERCURY ARC RECTIFIER CHARGING SET.

mounted on the panel, is lighted, but when the battery is placed in the circuit the light is extinguished.

In starting the rectifier the flash necessary to break down the initial resistance of the negative electrode is produced by slightly shaking the bulb by hand. On special order an automatic shaking device can be supplied, though it is not included in the regular outfit.

The standard General Electric outfits are suitable for operation with either 110 volt or 220 volt alternating current, 60-cycle, single-phase circuits. For batteries requiring a range of direct current of from 45 to 115 volts, the 220-volt circuit gives the most economical service; while smaller batteries, requiring from 16 to 45 volts direct current may be most economically charged by the use of 110 volts alternating current. Three standard sizes are furnished, ten, twenty and thirty amperes, and the instrument can be adapted to any direct current required for battery charging.

Manufacturers of mercury vapor converters state that the efficiency obtained under ordinarily favorable conditions is about 80 per cent.; a little more under the best conditions and less if the conditions are unfavorable; the instruments are made to give the best results under the average conditions imposed by battery charging.

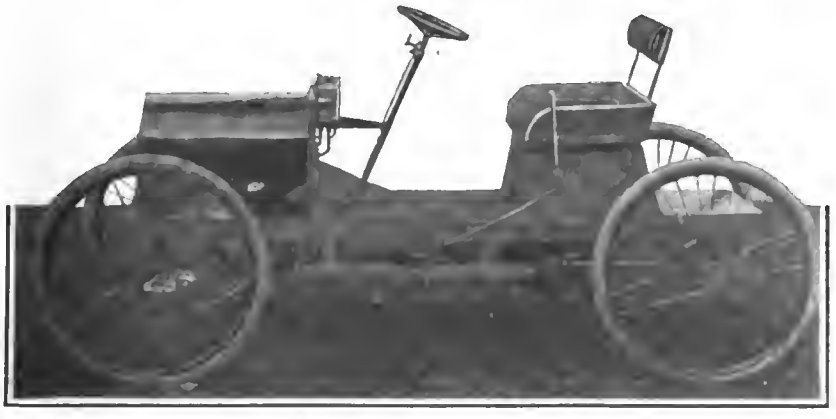
Owing to their simplicity of operation, lack of moving parts and comparatively low first cost, the mercury vapor apparatus is well adapted for use in private garages. Expert manipulation is not required, and, with automatic starting apparatus fitted, the converter can be left charging the battery over night without danger of overcharging or of allowing the battery to discharge itself. The only part liable to breakage is the glass bulb, and this is guaranteed by the manufacturers for a time sufficient to allow any inherent defects to manifest themselves. In case of accidental breakage, however, the bulb can be replaced at moderate expense.

BOYS' HOME MADE CAR.

When the little car shown in the photograph reproduced herewith was given its first test after completion and found to work perfectly, it proved the happiest moment in the life of Nels J. Nelson, an eighteen-year-old boy of New Britain, Conn., for the car embodied in concrete form the ideas and workmanship of the young machinist and his partner, Ernest Powell, of the same place.

The little car measures 5 feet 6 inches between axles and has a tread of 30 inches. Within these dimensions the boy inventor has contrived to provide the features of a practical touring car, at a cost for materials of only $22.30. Nelson has been experimenting for three years in the construction of gasoline engines, the one in this car being the third that he and his partner have built. The first one was a motorcycle engine which was fitted to a bicycle that afforded the boys much pleasure. The second was a stationary gasoline engine. The third and present one is a 2 1-2-horsepower air-cooled engine for which Nelson made the patterns; he had to have the parts cast for him, and the cylinder was purchased, but the other parts of the car, including the bicycle wheels and the body, were made by the boys in their little 8 by 16-foot shop. Work on the engine for the machine was started about four months ago, and the entire car was completed in three months.

The car has shaft drive with universal joints, a two-speed transmission giving three to four miles on low and from ten to twelve miles an hour on high, and will carry two persons on the seat.



DIMINUTIVE 2 1-2-HORSEPOWER AUTO, BUILT BY TWO NEW BRITAIN YOUTHS.

Artistic Ensemble of Garden Show.

VISITORS to the automobile show in Madison Square Garden next month, who have attended previous shows in the same building, will have to rub their eyes a few times to convince themselves that they are awake and in the same old hall. It will be the same permanent structure, to be sure, but, with a big B, the interior will recall no memory of the heterogeneous and multitudinous jumble of inartistic effects in color and form that has been the chief characteristic of the Garden shows.

There will be decorations in the 1906 show, and not of the sort the term usually implies—individual and inharmonious efforts to get striking effects at the different booths. Instead, there will be a harmonious, coherent design, which will embrace every square foot of floor, wall and roof area, in which the architect, the sculptor, the weaver of textiles and the scene-painter have supplemented each other's art in an effective composition. With the aid of the electrician and the sign-maker, the visitor will be able to see and understand what he sees, without violence to a discriminating taste.

From the Madison avenue entrance the visitor will get a first and favorable impression in passing through a pergola before entering the building proper. In this approach green will be the predominant color, and softened lights will give contrast to the brilliancy of the hall beyond. At the curtained entrance to the hall, on the main floor, where the visitor enters, a fountain will mark the parting of the aisles, of which there will be two, one on each side. A draped figure of a woman, holding aloft an automobile, typifying speed, on which a brilliant white light will be projected, is the centre-piece, surrounded by Corinthian columns, supporting an arch. Colored lights will fall on the water below, which will stream from the mouths of monster batrachia. To the right the modeled figure of the automobile girl, and to the left that of the chauffeur, will point the way toward the interior of the hall.

When he has recovered from his surprise at this display of art in a Garden show, the visitor naturally will look about in wonder. He won't be disappointed. In outline he will recall the various world's fairs of recent years, with their mass of peristyles and colonnades and detail of pilasters and columns and capitals. And in

FOUNTAIN FACING GARDEN ENTRANCE.

color the white of the staff work, relieved with gold, will be subtly blended with green and blue, all used with a view to setting off the rich colored bodies and glistening metal work of the cars on exhibition.

Down the center of the hall a colonnade will extend from the central arch at the entrance for a distance of 196 feet. This, as well as all the other plastic decorations, will be made of the familiar white "staff" or plaster composition. The floor, except in the aisles, will be covered by an old-gold colored carpet, and on each side of the colonnade the central rows of exhibits will be placed. Above each stand, at the cornice, the name of the exhibitor will be seen in gold letters on a white background illuminated by incandescent lamps which will be hidden from direct view, just as are the lights in a picture gallery. These lamps will extend the entire length of the colonnade on both sides, and will aid the lighting up of the exhibits on the floor. All the signs will be uniform in style.

On the gallery side of the aisles the effect will be carried out by pilasters which will cover the lower members of the roof arches, and will give the effect of columns supporting the gallery. This effect will be carried higher up by pilasters and cornice encircling the first gallery, and similar treatment of the walls to the upper gallery. White silkoline, green burlap and green smilax decorations will bide the gallery walls and pleated silkoline with festoons of smilax will adorn the gallery fronts up to the top of the rail. The immense roof will be hung with a canopy of turquoise blue picked out with gold stars, to give the effect of an Italian sky, and the entire end of the Garden opposite the entrance will represent an Italian scene. Three great clusters of lights in the roof will fill the interior with a rich, diffused light.

Although much work has yet to be done in the preparations of the actual decorations, splendid progress has already been made, and in various shops in New York and outside the scheme is taking shape. Under the guidance of George A. Witherspoon, the architect of the scheme, a party of newspaper men and others inspected the staff work last week. The accompanying engraving gives only a suggestion of the scheme of decoration, as it was made from a sketch and not from the actual structure. It is the intention to erect a section of the staff work soon and photograph it, so that exhibitors can get a good idea of what the setting of their exhibits will be like.

Decorations for the Coliseum.

Ninety-five complete car makers have been allotted space for displays at the Chicago Automobile show of February 13 to 10 next. This number, it is believed, will equal, if it does not exceed, the combined complete car builders' showing at the two New York exhibitions. Final allotments of spaces for sundries displays are being made this week and the allotments will be announced in a few days. Complete cars will for the first time be exhibited on the second floor of the Coliseum annex, herctofore devoted to sundries. In addition to the use of all available display space in the Coliseum, the main floor and all the gallery of the First Regiment Armory will be utilized.

The scheme of decoration in the Coliseum is more comprehensive and artistically planned than ever before. The walls all around the building will be finished in Dutch paneling with a cap of staff figured with wreaths of flowers, in the centers of which will be clusters of electric lights. The woodwork is to be stained in a dark color like mission furniture and the staff will be tinted to match. Extending lengthwise of the great arched hall there are to be three rows of tall columns supporting the signs of the different exhibitors that have spaces on either side. The pillars will be of wood covered with staff having designs in relief, and will be surmounted each by a cluster of five frosted globes enclosing incandescent lights. Four of these globes will be one foot in diameter each, and the uppermost globe will measure sixteen inches through the center. The panels extending from column to column overhead will also be covered with staff in relief, and from them will depend by iron chains series of metal shields, each bearing one letter of the name of a car or of a company to be found beneath. As a rich background for the shields there is to be a heavy drapery of straw color hanging down three feet below the panels and looped up at regular intervals.

To separate the booths there are to be low rails between them, but the fronts on the aisles will be unobstructed.

All the glaring arc lights above and below the gallery are to be removed and their place taken by handsome hanging clusters of frosted incandescent light globes diffusing a mellow illumination that will greatly change the character of the lighting of the building.

To date the decorators have not advised Manager S. A. Miles of their plans for overhead treatment of the arched roof.

Show Week Meetings.

Again this year as in the past, show week, both in New York in January and in Chicago in February, will be the occasion for the holding of a number of annual business meetings and banquets of national interest.

Doubtless the affair of greatest public interest will be the annual banquet of the Automobile Club of America, promoter of the Sixty-ninth Regiment Armory show. As usual, this will be held on the concluding night of the New York show week, January 20, in the great ballroom of the Waldorf-Astoria Hotel, beginning at 11 P. M. Although the committee in charge is not yet ready to give out details of plans for the night's entertainment, it is hinted that there will be a number of special new features that will prove attractive. Covers are to be laid for upwards of five hundred members and guests.

As yet the promoter of the Madison Square Garden show—the Association of Licensed Automobile Manufacturers—has not formulated plans for any social function for the week, but it may reasonably be expected that later it will decide to give a dinner, or at least a smoker and entertainment of some sort to the exhibitors, thus filling the vacancy left by the retirement of the National Association of Automobile Manufacturers, which, as one of the joint promoters of recent Madison Square Garden exhibitions. usually gave a banquet or smoker during the momentous week. As host this year, it seems to be "up to" the A. L. A. M. to provide something of the sort, although the fact that the manufacturers who compose its membership will be extraordinarily busy at the time may be considered sufficient reason for abandoning any such function this winter.

The annual business meeting of the N. A. A. M. is scheduled for Wednesday, January 17, at 11 A. M., at the Victoria Hotel. At this meeting the annual reports of the president, secretary and treasurer are to be read and members of the executive committee elected for the ensuing year. Nominations close with the first mail on January 2. Following the election, the new executive committee will hold a meeting on the same day, at which officers for the succeeding year will be considered. Although these officers can be elected at any time within thirty days after the annual meeting, it is probable that, as last winter, the election will be held at the February meeting of the committee, which will occur in Chicago, on Wednesday of the Coliseum show week. It is thought probable that most, if not all, of the present officers will be renominated for election.

The annual convention of the American Automobile Association has been set for the week of the shows in New York, January 13 to 20, and will be held in the Sixty-ninth Regiment Armory, which will shelter the A. C. A. exhibition. Reduced railroad rates for this meeting have been secured for members, as heretofore. The regular election of officers will take place at this meeting. A subsequent meeting is fixed for Chicago show week, for which arrangements have also been made for reduced railroad fares.

There will doubtless also be arranged meetings of the American Motor League for both show weeks, and several trade and club dinners, such as the Hyatt Roller Bearing Company and New York Motor Club affairs of last winter.

Air-Ships at Club Show.

Quiet but earnest efforts are being made to provide for the forthcoming automobile show in the Sixty-ninth Regiment Armory, New York, the most advanced and spectacular feature contemplated by the management of any of the winter's shows. It develops in a roundabout way from Paris, that the Automobile Club of America is trying to secure, through its latest offshoot—the Aero Club of America—a display of the latest models of balloons and air-ships from France.

An invitation was sent recently by a prominent member of the Aero Club of America to Compte de La Vaulx, a well-known French aeronautist, to visit New York in January and give a series of lectures on aerostation. He was also asked to use his influence with the French balloon makers to send their products to New York for exhibition at the A. C. A. automobile show. Concerning this invitation, the Compte de La Vaulx said, according to a Paris dispatch to the *Herald*, that he would certainly fall in with the wishes of the American club, among the members of which he counts many personal friends.

Secretary Butler, of the Automobile Club of America, assures THE AUTOMOBILE that a display of the latest balloons is seriously intended as a feature of the club's show, although it had been the intention to say nothing about it until the possibilities of securing exhibits were fully determined.

The artistic and spacious armory building, which is conveniently located at Lexington avenue and Twenty-fifth street, is to be thrown open to the public for the first time on the occasion of the show. This is a magnificent structure just nearing completion, whose cost is placed at $1,500,000. In the great exhibition hall is a brick arch that is probably the largest in the world of this material. Of course everything about the building will be new and clean, and in the matter of decorations for the show an effort will be made to have them harmonize with the displays and accentuate the architectural beauties of the building. The decorations are not to be elaborate, but will be made

subordinate to the exhibits that constitute the show.

CLEVELAND SHOW PLANS.

Local Dealers Unite on Central Armory and Vote $10,000 for Decorations.

CLEVELAND, Dec. 11.—The Cleveland Automobile Dealers' Association believes that its show this year will be the greatest local function of the kind ever held. All differences with T. C. Whitcomb, the "independent" dealer who claimed to have an option on the Central Armory for the show week, and who threatened to hold an independent show on his own account, have been patched up, and several of the dealers outside the ranks of the association who were waiting to see what Whitcomb might do, have now joined hands with the association, so that there will be but one big show.

Central Armory will afford almost twice the floor space that the old Grays Armory did for previous shows, but the indications are that even this increase will not be sufficient to take care of the demand. The main floor will be given over entirely to automobile exhibits, and the exhibitors will not be permitted to have elevated signs of great size as in the past. Instead, small brass signs of uniform design will be used.

In the matter of decorations, the show will far outclass previous attempts. The association held a meeting a few nights ago and voted to appropriate $10,000 for beautifying the hall. The main floor will be lighted by 1,200 colored incandescent lamps, as well as thirty-two arc lights of 50-candle-power each. Under the gallery, 560 incandescent lights will be placed, and above the gallery, where sundries and specialties will be exhibited, will be about 500 more.

MORE BOSTON SHOW SPACE.

BOSTON, Dec. 11.—So great has been the early demand for space at the show of the Boston Automobile Dealers' Association that is to be held in Mechanics' Building in March that the show committee and the manager have hit upon a scheme of making use of the broad balcony that surrounds three sides of grand hall, the main apartment of the building. This balcony is very broad and is filled with many rows of seats. Last year it was given up to spectators. It has been found that it is possible to remove most of the seats, thus giving many additional feet of excellent show space. Several leading manufacturers of cars will be found in this balcony.

The committee is now at work upon the decorative scheme for the building and it is promised that the decorations will be on a grander scale than ever before. All the exhibition space will be carpeted in green. The color scheme of the signs and other decorations will shortly be decided upon. As many prominent exhibitors have been forced to take space in exhibition hall, this will be treated uniformly with grand hall.

The committee recently met representatives of the power boat builders and discussed plans for the boat displays in the basement. The boat builders suggested a number of improvements in relation to their part of the exhibition and these will be put in operation by the committee.

LOCAL SHOW SANCTIONS.

In addition to the national show to be held in Chicago from February 3 to 10, following the two big New York shows of January 13 to 20, sanctions for local exhibitions have been granted by the National Association of Automobile Manufacturers as follows:

Washington Automobile Dealers Association, Inc., Feb. 3-10; Tri-State Sportsmen's Association, Detroit, Feb. 12-17; Cleveland Dealers' Automobile Co., Feb. 19-24; Buffalo Automobile Trade Association, March 5-10; Boston Automobile Dealers Association, March 10-17; Denver Automobile Show Association, a date in April to be hereafter decided upon.

The New York *Herald* states that shortly before his death, Clarence Gray Dinsmore placed 10,000f. at the disposal of the Herkimer Committee as a prize.

PHILADELPHIA SHOW.

Expert Exposition Display to Be Managed by C. I. Campbell—Date Advanced.

PHILADELPHIA, Dec. 11.—The regular ticket of officers nominated for the Philadelphia Automobile Trade Association was elected last Tusday night at the Hotel Hanover, as follows: President, A. E. Maltby, of the local Winton branch; vice-president, Gilbert S. Smith, of the Motor Shop; secretary-treasurer, I. J. Morse, of the Locomobile branch. These three officers and W. F. Smith, of the Rambler branch, and Daniel Cohen of the Reo, constitute the board of directors.

A change of date for the annual show was decided upon, that function now being scheduled for February 24 to March 3. After much discussion, Chester I. Campbell, who has successfully managed several similar affairs in Boston, was selected to look after the details of the coming exhibition under the general direction of the show committee appointed by President Maltby at the last meeting.

At the Hotel Walton, on Friday night, the show committee met Manager Campbell and outlined the preliminary work. Various subcommittees were named and instructed to take up at once the several branches of work assigned them. It was also decided to open an office immediately near City Hall, where all the business directly connected with the show will be transacted.

The south pavilion of the National Export Exposition, in which the show will be held, is about 100 by 400 feet in dimensions, and a floor plan showing the arrangement of the spaces is being prepared and will be ready for distribution this week. The huge structure is so arranged that if additional space is required it can easily be provided for by throwing open as much of the main structure as desired—all on the ground floor. On the second floor are large meeting rooms especially designed for restaurant, office and cloak-rooms. Indeed, a better-equipped building for the purpose would be hard to find anywhere.

EXPORT EXPOSITION BUILDING, IN PHILADELPHIA, WHERE AUTOMOBILE SHOW IS TO BE HELD MARCH 3 TO 10 NEXT.

Low and High Tension in Magneto Ignition.

(From the Autocar. Concluded from page 570, issue of November 23.)

Excessive Sparking at Contact Points.

LET us now consider the result of switching off at *S* (Fig. 17).* So long as *S* is open, the circuit through the induction coil is permanently broken, but so long as the engine continues to drive the magneto a current is intermittently generated in the armature coil.

This current reaches a high value, since the armature coil is short-circuited until the platinum points separate. The current is then suddenly prevented from flowing. A violent self-induced current is generated, and serious sparking takes place between

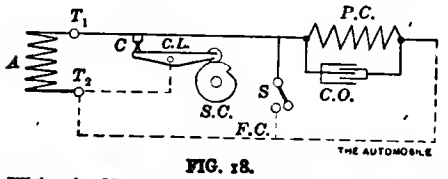


FIG. 18.
Wiring for Magneto, with Switch Correctly Wired.

the platinum points. These become badly pitted in a very short time. We must, therefore, find some other method of wiring the switch. This is given in Fig. 18.

It will be seen that the switch is now connected on one side to the wire leading from the magneto to the coil, and on the other to the frame, or, in other words, is grounded.

When the switch is in the position shown, we have two parallel circuits—across the platinum contacts and through the induction coil—in operation without interference.

If we close the switch *S*, what will be the effect? Whatever the position of the platinum points, the switch now offers a perpetual path to the current without involving the resistance of the primary winding of the induction coil. In other words, no appreciable current ever passes through the coil, no secondary current is generated, and there is no spark at the plug.

Even though the engine continues to drive the magneto, no harm is done, for the current flows round through the switch, and so long as this easy path is offered to it there will be no tendency to spark across the platinums.

The action of the switch is the reverse of that to which we are accustomed. When the switch is open, ignition proceeds as usual, but when it is closed no spark is produced.

At the present moment there are a large number of cars, and a very large percentage of motorcycles, running with their switches wired wrongly. We shall go back to this subject when we deal with the wiring of a magneto for multi-cylinder engines. Incorrect wiring of the switch on cars is little short of fatal.

* See issue of November 23.

We have now shown how the wiring of a storage battery system of ignition is altered to meet the use of a magneto, and the result reached in Fig. 18 is identical with the method employed in the Eisemann system. The induction coil in this and some other systems is separate from the magneto machine, but there are now on the market several high-tension magnetos in which the induction coil is included in the machine itself.

Induction Coil and Induced Currents.

In order to understand this method properly, it will be well to consider, shortly, what constitutes an induction coil, and how the induced currents are generated. When an electric current flows along a wire that wire is surrounded by a "whirl" of circular lines of force, having the wire at their common centre. So long as the current flows steadily the whirl remains still, but when the current rises or falls the whirl expands or contracts in unison with it.

If we suddenly break the circuit, the whirl falls in almost instantaneously upon the wire, and when the current is again caused to flow the lines spring out like the ripple around a stone thrown into still water.

Anyone who takes the trouble to watch these ripples will notice that when they encounter any obstacle—such as a stick protruding from the surface of the water—a subsidiary system of ripples springs into being around that obstacle.

It is so with the electrical current. If another conductor is placed within the range of the whirl as it springs out from or falls back on its centre, a secondary whirl is caused around the conductor. The secondary whirl exists only so long as the conductor is being cut by the lines of the primary whirl.

This whirl of force and the electric current are inseparable; where one exists, the other exists also. Hence it follows that, as the primary whirl cuts the secondary conductor, a brief current is generated in that conductor. If the secondary conductor consists of one wire only, the voltage of the secondary current is exceedingly small. It can, however, be increased to an almost unlimited extent by increasing the number of turns of the secondary conductor.

Obviously, if we desire the lines of force to cut the secondary conductor in many thousand places at the same time, it is most convenient to arrange both primary and secondary conductor in the form of coils. By so doing, and by filling the centre of the coil with a soft-iron core, nearly all the lines springing out from every turn of the primary coil may be caused to cut nearly every turn of the secondary coil. In this way a secondary current of very high voltage may be generated, and we obtain a jump spark between the points of the plug.

We are quite used to the general appearance of an induction coil, or rather to the appearance of the oblong or cylindrical case which contains it. Hence the high-tension magneto, giving its high tension current direct from the armature windings, appears at first sight to be something quite different.

High-Tension Magneto and Induction Coil Principles Identical.

The broad principle is, however, identical. Instead of one simple winding, the armature core is surrounded by two separate coils. One, the primary coil, is of comparatively thick wire, and consists of a very limited number of convolutions. The other, the secondary coil, is formed of a large number of turns of very thin wire. The wires of both coils are carefully insulated, and the two coils are also insulated from one another. We have here all the constituents of the ordinary induction coil. It is only necessary to provide a current in the primary coil which shall be suddenly broken at suitable intervals, and we shall obtain a secondary current capable of giving a spark at an ordinary sparking plug. But the primary current, as we have seen when discussing the low-tension magneto, is provided by the rotation of the armature between the poles of the field magnets. Further, this current is broken, when at or near its full strength, by the contact breaker contained in the magneto machine itself.

Clearly, it follows that a secondary current will be obtained at each "break," dependent for its strength on the speed of rotation of the armature and on the suddenness of the break. There will, undoubtedly, be other subsidiary effects produced. For instance, the rotation of the secondary

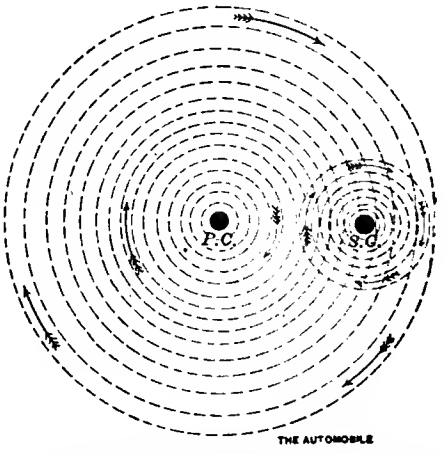


FIG. 19.
Showing Lines of Force Closing in on Primary Conductor, P C, at the Moment of "Break," and the Consequent "Whirl" Round the Secondary Conductor, S C.

coil will itself create a difference of potential between the ends of the secondary winding. But though this, and other details which need not be discussed here, certainly must to some degree affect the nature

of the spark, yet they are, as we have said, only subsidiary, and in trying to understand the action of the high-tension magneto we shall do well to neglect them altogether. We should remember that the predominating influence is that with which we are already so familiar in the ordinary induction coil.

Self-Induction.

We are now in a position to consider more fully the phenomenon known as self-induction, to which we have already referred more than once.

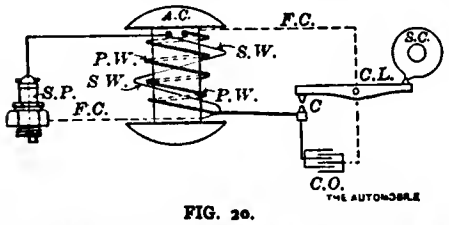


FIG. 20.

Connections of High-tension Magneto, Bassee-Michel Type.

P W, primary armature winding.
S W, secondary armature winding.
A C, armature coil.
C L, contact lever.
S C, steel cam.
S P, sparking plug.
C, platinum contacts.
C O, condenser.
F C, frame connections.

Let us take the case of a sudden break in the circuit. The lines of force surrounding every portion of the coil suddenly close in. In so doing the lines falling in on one convolution of the coil cut the neighboring convolutions. This is the only condition necessary for the production of an induced current—the cutting of a conductor by lines of force. Thus at the moment of break the coil induces a current in itself. If the break is sudden the voltage of the self-induced current may be considerable. This fact, as already mentioned, is utilized in the design of low-tension plugs of the electro-magnetic type.

It is not essential that the circuit shall be actually broken. Any sudden increase or decrease of the current flowing through a coil must always result in the generation of a self-induced current.

This current always flows in such a direction as to hinder the change which causes it. For instance, if the current in the coil be suddenly decreased the self-induced current will tend to prevent its instantaneous decrease by flowing in the same direction as the original current.

Similarly, if a current suddenly ceases to flow in a coil the self-induced current tends to maintain the flow, and when the circuit is "made" self-induction prevents the current from rising instantaneously to its full value.

An example of a system of wiring for a magneto, which combines the induction coil with the armature winding, is given in Fig. 20. There are other systems in use besides the one shown. Referring to the figure, it will be seen that the primary winding is connected to one of the contacts *C*, thence the current travels across the contacts to the lever *CL*, and returns to the other end of the primary winding by way of the armature spindle. The contacts are closed for the greater part of a revolution, and it is only when the points separate that a strong current is induced in the secondary winding and a spark passes. By connecting the switch across the primary circuit, so as to provide a path other than that across the contact points, ignition would be arrested.

For the sake of simplicity, we have hitherto considered only simple circuits for single-cylinder engines. Very little complication is required in order to adapt the high-tension magneto to work multi-cylinder engines.

Distributing the Current.

The secondary current, instead of passing direct to the plug, is led to a high-tension distributer. Distributers of this type were very little used a few years ago, as it was supposed that satisfactory insulation would present great difficulties. At the present day, however, their use is not limited to magneto ignition. The single coil and secondary distributer offers a ready means of synchronous timing, which can hardly be obtained in the same perfection when several tremblers are in the system, and the adjustment of these influences the synchronism.

A diagram of the high-tension wiring only, for a four-cylinder engine, is given in Fig. 21. This will be the same, whatever high-tension magneto may be employed. The distributer is almost invariably built up with the magneto machine, being gear driven from the armature spindle. Fig. 21 does not show a practical form of the apparatus, but is only a diagram. The secondary winding is connected with the shaft

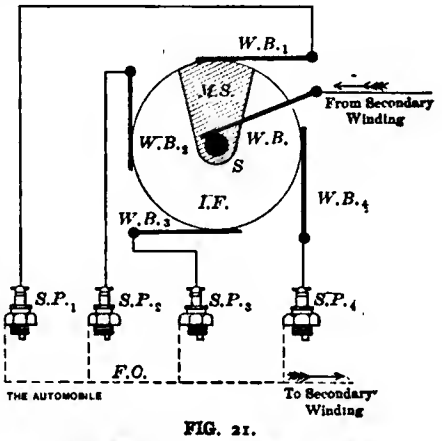


FIG. 21.

S P, sparking plugs.
F C, frame connection.
M S, metal segment.
I F, insulating fibre.
S, metal spindle.
W B, wipe blades.

S, from which the current passes through the metal segment *MS*, and is led to the four sparking plugs in turn. Usually the connections to the plugs are made in the order of 1, 2, 4, 3, counting the front cylinder as No. 1.

In practice, the blades *WB* may be replaced by balls, held down by springs, or by devices in the nature of sparking plugs, which do not quite touch the metal segment, or by brushes of more suitable shape than those shown. With magnetos some form of brush is usually retained.

Dual Systems of Ignition.

Many large cars are fitted with two ignition systems. In this case it is usual to provide separate sets of sparking plugs for the two systems; otherwise difficulties will arise, owing to the connections being such as to allow the secondary current to complete its circuit without producing a spark at the plugs.

We have already referred to the wiring of the switch, and from what has been said it should be clear that, when the accumulator system is in use, the magneto must not be allowed to run on open circuit. Let us suppose the alternative battery system to be in use and the magneto to be running

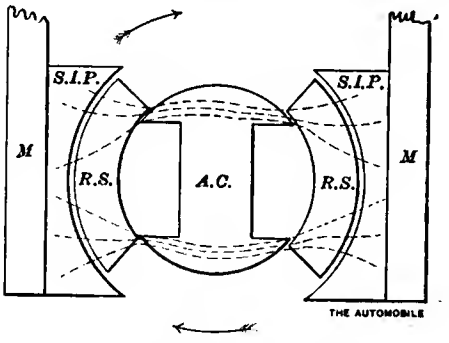


FIG. 22.

S I P, soft iron pole pieces. A C, armature core.
R S, rotating shields. M, magnets.
The dotted lines show the general direction of the lines of force.

"idle." If the switch is correctly wired, and is placed in such a position as to offer a perpetual path to the primary current, no secondary current will be generated. If we were to examine the switch, we should find it to be in the position commonly known as "on." This is correct.

Now, suppose the switch to be wrongly wired, as in Fig. 17. The magneto is running alternately on open circuit and on short circuit. At every "break" the self-induced current causes fierce sparking between the platinum points, which are soon completely eaten away.

Another mistake which may cause serious results is the following: The magneto not being in use, the secondary wires are removed from the sparking plugs. The switch is subsequently placed in the working position, and—possibly accidentally—is allowed to remain so. Strong high-tension currents are generated in the secondary windings of the magneto or induction coil. The secondary wires having been removed, these currents find no natural outlet, and in all probability break through the secondary insulation, and the apparatus is ruined.

Safety Spark Gaps.

A safety spark gap is provided in case of anything of this kind occurring, but too much faith must not be placed in its efficacy. The gap must, of necessity, be com-

paratively wide or it will interfere with the ordinary working of the ignition. Hence, though the gap may provide a path for the spark, an unnecessary strain is put on the windings. Only an understanding of prin-

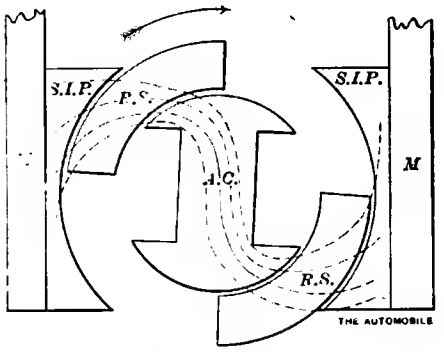


FIG. 23.

ciples can, with certainty, prevent mistakes of this kind.

ROTATING SLEEVE SYSTEM MAGNETOS.

Before concluding this article we must deal shortly with a system of current generation of such importance that it can hardly be neglected here. We refer to the system involving the use of a fixed armature separated from fixed field magnets by rotating shields of soft iron (Figs. 22 to 24). The armature stands vertically between the soft-iron pole pieces *S I P*, leaving just sufficient room for the rotation of the shields *R S*, which are diametrically opposite to one another and are joined by a non-magnetic material.

Referring first to Fig. 22, it will be seen that the shields, when in this position, act simply as extensions of the pole pieces. The lines of force pass across the top and bottom of the armature core without threading the coil. The conditions are similar to those which obtain when a rotating armature passes through the vertical position. We have already found (see Figs. 7 and 10) that this represents a position of maximum current. Passing on to Fig. 23 we see that the rotating shields have moved through an angle of 45 degrees, and it is clear that the

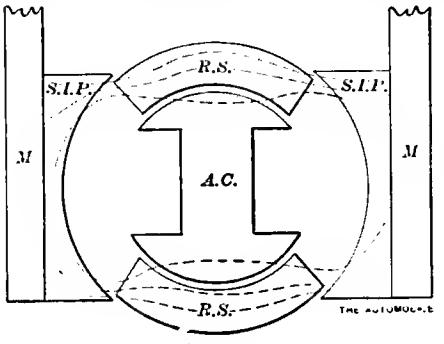


FIG. 24.

lines of force will be guided by the iron into the position shown.

Comparing this with Figs. 6 and 10 (issue of November 9) we see that a zero position has been reached. This may be seen, too, without reference to these figures, since it is clear that a small movement of the shields would not cause the lines of force to change their path. In other words, the lines of force are not in the act of cutting the coil, and no current is being generated.

As the shields approach the position shown in Fig. 24 the lines begin to cut to the coil rapidly, and by the time that the shields are situated directly above and below the armature there are again no lines threading the coil.

The distribution of the lines of force is now the same as in Fig. 22, indicating another "maximum" position. The shields now act as extensions of the armature core, whereas in Fig. 22 they acted as extensions of the field magnets. Although no lines are threading the coil the field of force is now undergoing a rapid change, and a maximum current is being generated. We see, then, that the system involving the use of rotating shields gives a maximum four times in one revolution instead of only twice. The same number of maximum positions can thus be obtained with half the speed of rotation necessary with the ordinary type of magneto.

There are many other points of interest in this system, but we should not be justified in entering more fully into them in an article which only professes to deal with the subject generally, and not with any specific type of magneto.

NEW PUBLICATIONS.

Novels in which the automobile is the pivot of the plot are increasing in popularity, following in the wake of the automobile itself, for the "new locomotion" provides the novelist with unbounded opportunities for evolving new situations and improving on old ones. Full advantage is taken of these opportunities in the story of "My Friend, the Chauffeur," a novel by C. N. and A. M. Williamson. From the point of view of a technician the book is not, perhaps, exactly "according to Hoyle"—in fact, the authors take some decidedly novel views of matters mechanical. The book was not written, however, as a mechanical treatise, but as an amusing story, and an amusing story it is. An Englishman who is a real lord and is in need of ready money, temporarily suppresses his title and turns his automobile to good account by taking a rejuvenated American woman, her beautiful niece and her precocious daughter touring through Italy, for a consideration. The needy lord, who, by the way, is a magnificent fellow, takes along his intimate friend, who also has a "handle" to his name which is not suppressed. The party proves to be a most congenial one, but, unfortunately, there is a certain dark, handsome prince who insists on following the tourists in his own car in order to enjoy the society of the ladies, whose acquaintance he has already made. The prince also has an automobile which, though faster than the less pretentious machine used by the tourists, is continually giving trouble, and much amusements is caused by the efforts of the prince to disguise the fact. Of course everybody falls in love with somebody, and the climax is reached when the prince, who develops into a first-class villain, carries off the lady of his choice by main force, using a steam yacht and his automobile as accessories to the deed. The Englishman with the title follows and batters down a door at the psychological moment and rescues the fair maiden from the clutches of the dark villain. The book, which consists of 324 pages and is attractively illustrated, is published by McClure, Phillips & Co., New York.

SUBSTITUTE FOR THE PIT.

Instead of the somewhat expensive and inconvenient repair pit common to most automobile establishments, a Paris grocery house has adopted the simple expedient of a wood and iron platform having an inclined runway at one end. A car can be run up under its own power, and when mounted, is secured by a chain attached to the wall to prevent danger of a false start. Should the motor be disabled, the automobile is easily drawn on to the platform by means of a rope and windlass.

The firm of Felix Poton, which has adopted this system, possesses nine trucks and delivery vehicles, the majority of them being De Dion-Boutons, the mechanical parts of which are not easily accessible from above, and it has found the platform a most convenient and time-saving contrivance, as the workmen are not put to the inconvenience of climbing into and out of a pit. There is also a better light on the machinery, as the platform stands at a comfortable working height from the floor.

NEW USE FOR AUTO TRUCK.

The Knox auto truck, which S. A. Miner has been running as a coal wagon for the fire department for about a month, was withdrawn from duty for a while by Mr. Miner yesterday, says the Hartford *Courant*. Since the vote of the fire board on November 6 that Mr. Miner could demonstrate with his auto, it has answered every alarm, and in a good many instances it beat out apparatus located nearer the fire than the auto station. It had a dozen runs in the time it was in service, proved very handy at the Pleasant street ragshop fire Thanksgiving night, and won Chief Krug's approval, for he said last night that the machine had done well. Later in the winter, when there is plenty of snow on the ground, Mr. Miner is ready to demonstrate its powers again, and will have it answer alarms for a couple of weeks or more. When the fire commissioners were talking over the apparatus Monday night the question of the machine's ability to get about in snow was what interested them the most.

Automobiling is recommended by physicians as a health bracer, on the theory, probably, that it is the pedestrian who has that run down feeling.—*Journal*, Kansas.

Automobiling Under the Equator, in Colombia.

By W. E. FRENCH.

BOGOTA, Oct. 14.—There are but two autos in Colombia that I know of, and they are both Cadillacs and are under my care. The first one, a Model A, was brought here something like a year ago, and in bringing it up the fifty miles from the Magdalena river it went over the bank in a landslide from the Cambaa Road and was brought the rest of the way in bullcarts. After a time new parts were procured and repairs made. The mishap has thrown it "out of true," however, and the frame is still that way, but the car runs fairly well. The other automobile is a Model C, which came at the same time that I did in July. Everything is very slow down here. It took more than six weeks to get the car from New York here, and I will say that it came through in very good shape, excepting a few scorch marks, where sparks had lighted the paper packing and burned the paint in several places, giving it a very close call.

This new auto and its driver creates a sensation whenever it goes out on the streets of the city, and if I stop anywhere a crowd gathers in an instant, wondering

Taking a 25 Per Cent. Rise—Note Rope on Wheels.

what evil monster has arrived. The natives peer under the machine to see the wheels go round, and feel of everything about the body and running gear, and if I stand by the auto waiting for my people they feel of my coat, gloves and cap, and discuss whether or not these are a part of the machine.

Bogota, the capital of the Republic of Colombia, is but five degrees north of the Equator, and is at an altitude of about 9,000 feet. The mornings and evenings are very cool—often as low as 48 degrees—and it is rare that it reaches 75 degrees during the midday. During August and September I wore an overcoat every day. Nearly every day we have a fine rain or mist, the clouds hanging low.

Bogota is a typical Spanish city, and has about 150,000 population. The houses are very old, and tiled roofs will be seen everywhere. Nearly all are built around a "patio" or courtyard, with a large entrance door and hallway to it, from which one can enter the rooms. The windows or "ventana" are high and have bars before them, like a jail or guard house, and it is a pretty sight to see the faces smiling through the bars at one as you pass by with an auto.

There are no rules of the road in this country; everyone takes the best he can find, and that is not saying much, for the roads are very rough and poor for automobiles. They are often constructed of stone, varying in size from a hen's egg to a cartwheel. Some are crowned, while others are built flat and covered with soil. After a time the soil washes off, leaving the stones very uneven and often impassable. Nearly all of the streets in the city are constructed of stone, but few of them are smooth enough for an auto to go over faster than three miles an hour, and I do not know of but about six blocks where one could make over ten, if he wished to stay in the auto.

Return to the Garage After a 200-Mile Drive.

Narrow Street in Tunja—Wheels on Both Curbs

I recently returned from a two hundred mile trip to the north of Bogota over the government road, which before the many revolutions was in fair condition. It has very good grades, none more than 10 per cent., but so many political revolutions have interrupted progress and left the road in bad condition. Many bridges have been destroyed, and in places one has to ford streams, taking the banks as best he can. One of the photographs shows the auto taking a grade of 25 per cent. This road leads over some very heavy grades.

On my first trip I ran into a large mud hole that had been partially filled with rocks. The mud was so deep that the sprocket wheel and chain went out of sight and hit some of the rocks and stopped the engine. To get out meant to sink into the mud over one's boots, so I stood on the step, and by hanging on to the seat started up, but could not pull out. Finally it occurred to me that by backing up so that the front wheels came back into the place the rear ones had dug out I could get momentum enough to push through. It was getting dark, and we had to stop for the night before reaching the town that we expected to arrive at. The first place we got to was a road house that had no beds, so we had to sleep on the dirt floor. I had a better bed than the ordinary traveler, however, for I slept on the cushions from the auto, which were much softer than the cold and damp floor. The auto I backed under the projecting thatched roof that protected the doorway.

Such a supper as those Indians got ready for us; first came soup, then second course soup, third the same, and that was all. In the morning we started out, taking along six men, as the road ahead was not in sight, being under water too deep for the car to go through. We had to construct something like thirty feet of roadway, and while doing so pack-mules, horses and cattle

Navigating a Newly Constructed Road in Colombia.

were passing by the score and we had hard work to keep them off our newly made road.

Another photograph shows the auto passing over the freshly made road, composed of brush, weeds, grass, mud and a very little dry earth, and this photo shows how the wheels cut into the soft muck. Soon after getting through this we ran into a washout that was an abrupt drop of three feet. We kicked down the edges and made a run for it, and came through, but left everything loose in the car in the washout.

Afterward we had very good running for a few miles, till we came to the next bridge that was down. Here we had to take a roundabout road over some very steep grades, and hitched on a yoke of bulls to help us up the grades. It was their first pull at an auto, but they drove better than any bulls I should expect to find in the States. They took her up grades so steep that my gradometer went out of sight. First one, then the other, went down, but the driver coaxed them on till we made the top of the hill, when, to my astonishment, we were at the top of the steepest grade down a bluff which in places was at an angle of 45 degrees at least, with a surface of blue clay and slate.

When I got out and went down and came back, I remarked, "We are up against it now good and hard. No man can make that descent with any degree of safety"; but after looking over the ground, and finding no other way except returning three miles, the man with the bulls suggested putting the rope on the rear axle and backing the bulls down the bluff. No sooner said than done. I started up my engine, and with brake hard on and reverse pushed to its limit, we started down that bank.

How those bulls acted was a sight well worth seeing. Foot by foot they backed down. Part of the time they were on their feet and part not, but they held on like a "pup to a root" till we landed at the base.

How I wish I had a picture of that feat! and I never saw the gradometer or thought of it till I was by the side of those bulls, caressing them for their good work, not even noticing that my foot was asleep from holding down the brake. After paying off our men and removing the non-skidding rawhide ropes we started again over a stretch of very fair roads, and made our stop for the second night.

The car was a sight—mud everywhere. We washed some of it off to lighten up the car so she would run in the morning. This night was passed at a very fair road house. The car was the first ever seen in this section and attracted a large crowd, which named it the "Petrolia wagon."

The third day out we ran over some very good roads, the best, in fact, in Colombia, constructed by a blind engineer, by the way. Our next stop was in the city of Tunja, the former capital of Colombia and the oldest Spanish settlement here, noted for its quaint architecture and narrow streets. The photograph gives some idea of the width of the streets, the auto standing across the driveway with wheels touching each curb. Here we attracted more attention than in Bogota, this being the first time an auto ran over its streets. Any time upon stopping the car a crowd of hundreds of men, women and children would collect and gaze at myself as much as at the machine. The only way I could keep the crowd from getting into the car was to start it up either in one direction or the other, and by keeping it moving they would stand back.

After spending a few days here I took on gasoline, oil and water and started out again, the roads being in much better condition, after a spell of fine weather. After an hour's run we reached the backbone of the ridge, about 11,000 feet above sea level, and commenced to descend. Being at such a high altitude, our cooling water boiled at a much lower temperature than if we were lower down in the world, and we had to fill up several times before going up grades on the way to the top. As we started to descend I shut off the motor and coasted for miles at a time. When nearing the bottom of a grade I would throw on the switch and gently let in the high-speed clutch and away would go the motor as merrily as ever, all the better for the rest. In a number of places gangs of men were repairing the bridges and working the road, and at each place everyone would stop and look at the "Petrolia wagon," and not a stroke of work would they do till we were out of sight!

Finding the roads in good condition, excepting for loose stones, we made a fine run, without trouble excepting from sooty spark plugs. My supply of lubricating oil running low, I had to use mixed oil. The tires were not touched during the whole trip, nor did the car fail in any way. I did not meet a coach or carriage till we came within a few miles of Bogota. The appearance of the car upon its return to the garage after its two hundred mile trip is shown in the photograph. I think I had about 100 pounds of mud on each wheel just before entering the city, but, a ford being at hand, I washed a portion off before the picture was taken. This is the Bogota auto salesroom and garage, with the writer at the wheel. Some of the readers may recognize the driver as the same fellow who drove the limousine at the Daytona-Ormond beach last January.

Figures from France.

PARIS, Dec. 1.—Interesting and instructive figures on the evolution of automobilism in France have just been published in a report by M. Hennequin, chief of the office of the Minister of the Interior, to the extra-parliamentary committee appointed to study the automobile question. Coming from such a source the figures can be taken as absolutely reliable, and will form valuable data. The number of automobiles registered in the whole of France for the seven years 1899-1905 is:

Automobiles.

Year.		Increase.	Proportion on preced. year.
1899.....	1,672		
1900.....	2,997	1,325	73.2 per cent.
1901.....	5,386	2,389	85.9 per cent.
1902.....	9,207	3,821	70.9 per cent.
1903.....	12,984	3,777	41. per cent.
1904.....	17,107	4,123	31.7 per cent.
1905.....	21,524	4,417	25.8 per cent.

In France there are from a financial point of view two classes of automobiles, those in private use paying the full tax, and those employed for business purposes, and paying only half the usual taxation. It is thus possible to give figures as to the employment of automobiles in different trades. Ignoring the department of the Seine it is found in France that doctors, veterinary surgeons, dentists, etc., head the list with 1,109 automobiles; factory managers, engineers, architects, contractors and painters employ 359; commercial travelers and agents have 254; distillers, brewers, wine and spirit merchants, 211; carriage makers and job masters, 171; land owners, farmers, millers, milk dealers, 153; cloth, linen, hat, and drapery manufacturers and tailors, 153; iron merchants, ironmongers, nail makers, founders, etc., 125; grocers, pastry cooks, jam and chocolate makers, 92; bankers and exchange agents, 86; clockmakers and jewelers, 65; spinners, 50; sugar makers and refiners, soap and oil merchants, 45; seed and manure merchants, 44; wood merchants, 41; printers and booksellers, 36; other trades, 489; this gives a total of 3,485 automobiles used for business purposes.

The increase in power is shown by the following table, which will be found useful for reference:

AUTOMOBILES OF ALL KINDS.

	No. of horsepower	No. of automobiles	Average horsepower per automobile	Increased difference
1901..	26,427	5,386	4.90	.....
1902..	47,577	9,207	5.16	0.26
1903..	77,486	12,984	5.96	0.80
1904..	120,919	17,107	7.06	1.10
1905..	178,468	21,524	8.29	1.23

PRIVATE AUTOMOBILES.

1901..	22,415	4,427	5.06	.....
1902..	39,314	7,358	5.34	0.28
1903..	61,526	9,922	6.20	0.86
1904..	92,612	12,519	7.39	1.19
1905..	132,323	15,011	8.81	1.42

AUTOMOBILES FOR BUSINESS PURPOSES.

1901..	4,012	959	4.18	.....
1902..	8,263	1,849	4.46	0.28
1903..	15,960	3,062	5.21	0.75
1904..	28,307	4,588	6.16	0.95
1905..	46,145	6,513	7.08	0.92

Owing to the exceptional position, the Department of the Seine, in which is included Paris, is treated separately, the increase in the capital and the rest of the department for the seven years under review being:

	Paris.		Department of Seine, Excluding Paris.	
	Private automobiles	Business automobiles	Private automobiles	Business autos.
1899..	243	45	48	21
1900..	510	108	41	46
1901..	938	211	71	76
1902..	1,337	336	168	136
1903..	1,845	529	190	183
1904..	2,407	739	231	247
1905..	2,515	1,074	686	358

An amusing scheme—yet one which really seems to be seriously contemplated—is at present before the public in England. The proposition is to construct a special road from London to Brighton for the sole use of automobiles. The distance is fifty-five miles, and the track would be constructed at the side of the existing roadway, the estimated cost being $5,000,000. There would be no sharp corners and no hills, as the road would be graded like a railroad track. The whole scheme is rather absurd, for in the first place the existing roads will easily accommodate the greatest possible amount of traffic which could arise in the next fifty years. Except to the "scorcher" pure and simple, there would be very little pleasure to be derived from driving along a monotonously level track with nothing to do but steer. It is hardly likely that anything further will be done in the matter, but it serves to show the trend of popular opinion, namely, that the sole pleasure of motoring is speed.

French Runabout Six-Day Reliability Contest.

PARIS, Nov. 28.—Two-fold interest attached to the voiturette touring contest which terminated to-day; it was a test so thorough, so practical and so conclusive in results as to make it of interest to everyone connected with automobilism; and it was also a serious attempt to encourage the construction in France of the cheap, reliable runabout which has been so much studied in America and so much neglected here.

The regulations provided for machines with a minimum cylinder capacity of one liter, chassis weighing between 550 and 1,100 pounds, body weighing not less than 110 pounds and two passengers on board weighing together 308 pounds.

Twenty-two cars, representing twelve different forms, entered for the event, and thirteen starters, representing eight constructors, were sent away on November 20. The task before them was to cover 206 kilometers (128 miles) daily for six days in succession, at an average speed of 15 1-2 miles an hour, including all stoppages from whatever cause and with no repairs or readjustments except with the tools carried on the car and during the actual running time.

The start was made at 7 o'clock in the morning from the Darracq factory in the suburbs of Paris, and a run of sixty-four miles made in a northwesterly direction over roads of varying qualities and grades, one of the stiffest climbs being the well-known Gaillon hill. During the midday meal the cars were placed under lock and key and watched over by a vigilant road commissioner, and when they got back to Suresnes at the end of their daily run they again entered the big hall of the Darracq factory and were jealously guarded all night by a staff of police until five minutes of the official starting time.

On the morning of the first day a thick blanket of snow lay upon the ground, and under this the roads were in bad condition because of the bad weather of the previous day. Transport by animal traction was slow and was carried on under great difficulties, but the automobiles were little affected by the conditions, and of the thirteen starters only two had to abandon the day's run, one of them a Lacoste & Battmann, because of the loss of a wheel as the result of skidding, and a Hugo car, which turned over, also owing to a side slip.

Three De Dion-Bouton cars, driven by Bardin, Cormier, and Lionel De Dion, all finished the run without the loss of a single point. The penalty was five points for each hectometer less than the average of twenty-five kilometers an hour, timing being done over four different sections of the road each day. The De Dion-Bouton team covered the total distance at an average speed of over thirty-two kilometers (twenty miles) an hour, and although this did not give them any advantage over their competitors that covered exactly twenty-five kilometers an hour, it showed remarkable running power under the worst possible road conditions. A Lacoste & Battmann car also finished without any penalty, as did two out of the three forming the Grégoire team. The five others that finished were penalized from 95 to 790 points.

The second day conditions were better, road surfaces being comparatively good, with the exception of a frightful stretch of road for ten miles out of Paris. Five cars finished the second day without the loss of a single point on the two days' performances, an average speed of more than twenty-one miles an hour being maintained over the entire distance by four of the competitors. The De Dion-Bouton team, a Lacoste & Battmann car and a Grégoire were the five victorious ones. All the eleven starters, however, finished the run.

A thaw had set in on the third day, and the cars covered their daily task to the accompaniment of rain, wind and mud. It seemed too much to ask for an average speed of twenty-five kilometers an hour under such conditions, but no fewer than seven cars accomplished the difficult task, and at the end of the third day Cormier's De Dion-Bouton, Gachet's Lacoste & Battmann and Renoncé's Grégoire had not a single point against them. Lionel De Dion's and Bardin's De Dion cars were penalized only owing to the drivers' own fault.

On the fourth day not a single penalty point had to be charged, although the roads, instead of improving, had become worse owing to the melting snow and heavy rain. A De Dion-Bouton, a Lacoste & Battmann and a Grégoire were all three absolutely free from penalization, and nine cars were still in the running.

The end of the fifth day saw two cars, Cormier's De Dion and Gachet's Lacoste & Battmann, without any point against them. Renoncé, who with his Grégoire car had been at the head of the list for the first four days, found his tires had blown out during the night, and although he was, by exception, allowed time to replace them, the same misfortune befell him before he had got ten yards on the road, and he was obliged to quit. Thus eight cars were competing at the end of the fifth day.

Sunday, the sixth and last day of the regularity run, opened with rain, when the nine competitors were sent away. The day's sport was soon spoiled, for a portion of the road had been literally strewn with long nails bent into a special shape in order to more surely puncture the tires. Indignation is great against the criminal responsible for such an ignoble act, and energetic measures will be taken to discover the culprit or culprits. A reward of $700 has been offered for information that will lead to their arrest. Owing to this, the run was shortened and no official figures were given pending an inquiry by the Automobile Club of France.

The contest terminated by speed test, one kilometer on the level, a kilometer hill-climb and 500 meters with standing start and finish. The fastest time for each test was not penalized, those making a slower time were penalized one point for every fifth of a second below the fastest time. On the kilometer level, Lionel De Dion showed the fastest time—1 m., 40 s.—and for the three tests was also at the head with only 86 points penalty. Gachet, on a Lacoste & Battmann, was second on the three tests, with 127 penalty points, being at the head of the 500 meters standing start and finish; and Barriaux, who climbed the hill in the fastest time, came third in the three tests.

The final position is not exactly known. If the Automobile Club of France should annul the portion of the road on which nails were scattered, the result will be:

1. Lacoste & Battmann (Gachet).
2. De Dion-Bouton (Cormier).
3. Vulpès (Barriaux).
4. De Dion-Bouton (Lionel De Dion).
5. De Dion-Bouton (Bardin).
6. Lacoste & Battmann (Thomas).
7. Grégoire (Taveneux).
8. Lacoste & Battmann (Rochay).
9. Grégoire (Renoncé).

If, however, the nail-strewn portion has to stand as a part of the contest, the first four places will be: 1. Vulpès (Barriaux); 2. De Dion-Bouton (Lionel De Dion); 3. De Dion-Bouton (Cormier); 4. Lacoste & Battmann (Gachet).

Mediterranean Auto-Boat Program.

PARIS, Nov. 21.—By a happy unanimity the numerous regattas and auto-boat events which form one of the great attractions of the Mediterranean during the early months of each year, will in 1906 be so arranged as to make one complete series of events, thus allowing competitors to take part in every meeting, permitting spectators to follow all of the races, and at the same time leaving to each of the gay pleasure towns, so often inclined to look upon one another jealously, its own particular event.

Foremost among the events is, of course, the Monaco meeting, with its $20,000 in prizes and its fleet of sixty or seventy boats. Then comes the Mediterranean Cup, given by C. L. Charley, and run this year for the first time from Algiers to Toulon. No boat finished the run, and the only craft capable of undertaking such a journey—the American automobile cruiser *Gregory*—arrived in Europe too late to start; but this has not deterred the organizers from arranging another long-distance cruise next year. The Nautical Club of Nice will conduct a cruise along the coast, and the town of Cannes will take charge of the Burton Cup.

Next year the season will open, as heretofore, with the Monaco meeting from April 1 to 15. On April 16 the fleet will proceed

to Nice, where banquets will be given, regattas held and the Meyan Cup competed for. The next day, April 17, the Chauchard Cup, a cruising event from Nice to Toulon, will be held. This will also serve as an eliminating race for the Mediterranean Cup. On April 17 and 18 various races will be held in Toulon harbor and numerous fêtes in the town, and on the 20th the start will be given for the Mediterranean Cup. Instead of being competed for between the African coast and the French naval base, the cruise will be eastward between Toulon and Palermo. The first stage will be Toulon—Cannes—Nice, the arrival at Cannes being fixed for midday, and Nice in the evening, the Alexander Burton Cup being competed for between Cannes and Nice. The real struggle for the Mediterranean Cup commences on April 21, with a run from Nice to Gênes; still hugging the Italian coast, the competitors will proceed on April 22, 23 and 24, and on the 25th the run will be from Naples to Palermo. In this last stage there are special prizes, in addition to the part it plays in the Mediterranean Cup, the *Coppa della Navigazione* offering a work of art of the value of $2,000 and $4,000 are given in other prizes.

April 26, auto-boat races will be held in Palermo harbor, with a prize list of $1,000. Two steamships will follow the entire cruise, carrying mechanics and spectators, as well as the competitors and cars entered for the Targo Florio road race to be run after the Mediterranean cruise, on the island of Sicily. Naturally, the details of the auto-boat cruise, which has been named the Latin Circuit, have yet to be arranged, but from the outline already drawn up, it is safe to predict one of the most interesting motor boat events yet held.

BRITISH 4,000 MILE TIRE TEST.

The A. C. of Great Britain will conduct a 4,000-mile trial of tires, commencing February 1. The test will be carried out as far as possible under ordinary touring conditions; the tires are to be of standard touring type and will be chosen from stock by the club. For pneumatics there are four classes of cars, with total running weight, including passengers, of at least 1,500 pounds, 2,400 pounds 3,000 pounds and 4,500 pounds, respectively. Armored pneumatics (including the various non-skid bands) have a class with minimum weight of 3,000 pounds. Four classes are provided for solid rubber tires, the heaviest class having 14,000 pounds running load. The trials will be run off at about 200 miles per day, and, of course, under close official observation.

Spring wheel devices will not be allowed. Tbese have already been well tested in recent private trials under the club's auspices. Without doubt, the trials will prove very instructive, and should effectively demonstrate the great progress made in tire construction since the previous club trials in 1903.

French Salon Opens.

The French Automobile Salon in the Grand Palais, Paris, was formally opened by President Loubet on Friday morning, December 8. The French President drove to the exposition in a horse-drawn vehicle at ten o'clock in the morning and made his way at once to the Brasier stand, where the famous Gordon Bennett trophy was exhibited for the second time. M. Loubet spoke briefly to M. Brasier and M. Thery and passed on to other stands, stopping at the exhibits of Panhard, Bollée, Renault, Krieger, Gobron-Brillie, Fiat, Darracq and Mercedes cars. After this inspection the President entered an automobile and was taken to the Serres de la Ville, on the bank of the Seine, where commercial automobiles, autoboats and a few balloons were on exhibition.

The old desire of automobile manufacturers to bring out something strikingly original has practically disappeared, judging from the brief advance reports of the exhibits at the Salon, and there is apparently a remarkable uniformity of design among the majority of the machines shown. A great deal of attention has been given to the perfection of details, and many devices that not more than a year ago were considered good enough even for an expensive car have been discarded for something better. The Mercedes cars, for instance, are now fitted with mechanical force feed lubrication instead of the air pressure feed hitherto used. Air pressure is now used on the Mercedes cars only to force the oil from the main tank into the mechanical lubricator. A number of prominent makers exhibit devices by which the motor may be started from the seat, among them Brasier, Renault and Mors. The Salon remains open until December 24.

Typical English Tri-Car.

The tri-car shown in the accompanying engraving is an interesting example of a type of machine that is at present very popular in England. Whether the tri-car is a development of the old motor tricycle or of the motor bicycle with forecar attachment it is difficult to say; the machine combines many of the qualities of both, with the addition of not a few features of the light runabout. Sometimes the tri-car is made with a single seat, in which the passengers sit side by side; in such cases the machine is a car in all but name and the fact that it has but three wheels.

The machine illustrated, built by the Rex Motor Manufacturing Company, of Coventry, has steering gear, lever control, spring system, two-speed transmission gear, thermo-syphon water cooling system and double brakes like a regular runabout. The motor has two cylinders and is rated at 8 horsepower.

Tri-cars are invariably fitted with wire wheels. Owing to their light weight, usually from 400 to 500 pounds, and comparatively high power, they are usually excellent hill-climbers and fast on the level; they are convenient to handle in traffic, are inexpensive to maintain and the first cost is not great, ranging from about $250 to approximately $575.

ENGLISH TRI-CAR WITH 8-HORSEPOWER, TWO-CYLINDER ENGINE AND AUTOMOBILE SPRINGS.

FOREIGN NEWS NOTES.

The German automobile department at the forthcoming Milan world's fair promises to be a fully representative one, as the government has placed the matter in the hands of the German Automobile Club. The exhibition is in celebration of the opening of the Simplon tunnel, and will be a very important one.

* * *

The next English Tourist Trophy Race will, in all probability, be held in May instead of September, as it was this year. It will be held on or about the same date as the Gordon Bennett trials usually were.

* * *

Heated winter cars are now plying between London and Brighton, as the summer motor-bus service has been superseded by a service more suitable to climatic conditions. The winter vehicle has a smoking and a salon compartment, and is extremely comfortable. The fare for a return ticket is only 7 s. 6 d. ($1.85), and 40 pounds of luggage can be taken down free of charge. There are no outside seats on the winter omnibus, which is a welcome innovation.

GREGOIRE CAR THAT COMPLETED FOUR DAYS OF FRENCH RUNABOUT RELIABILITY TRIALS WITH A CLEAN SCORE.

BARDIN IN ONE OF THE THREE DE DION-BOUTON CARS THAT FINISHED THE CONTEST WITH CREDIT.

GACHET IN LACOSTE & BATTMANN VOITURETTE, WINNER OF FIRST PLACE IN SIX DAYS' RELIABILITY TEST.

New Columbia 28-H. P. Touring Car.

A NEW Columbia model, a gasoline touring car of 24-28-horsepower, will be among the automobiles placed on the parket for 1906 by the Electric Vehicle Company, of Hartford, Conn., and will be known as Mark XLVI. Among the interesting features of this car are the make and break ignition system with magneto, the three-point suspension of the motor and the transmission gearcase and the high speed of which the motor is capable, the maximum being given as 2,200 revolutions a minute. Ordinarily, the motor runs under a governor. Drive is by propeller shaft and bevel gears; sliding gears give three forward speeds. The 18-horsepower Columbia car with double opposed cylinder motor transversely hung under the hood in front, and 40-45-horsepower four-cylinder car complete the Columbia gasoline models; the two last mentioned are practically the same as the 1905 models, only a few detail changes having been made.

The cylinders of the new car are cast in pairs, with integral water jackets arranged to give a free flow of the cooling water; heads and valve housings are also cast integral with the cylinders, the usual openings, closed by screw plugs, being left in the heads of the cylinders and of the water jackets. The valves are all on the left-hand side of the engine and are all mechanically operated by a single camshaft (*B*, Fig. 1); the exhaust valves are considerably larger than the inlet valves. Steel forgings are used for the valves, heads and stems being integral. The valve cams act directly on rollers on the lower ends of the push-rods; the latter are fitted with adjustments for length. The push-rod guides are closely fitted into counterbores in the top of the crankcase and are held in position by yokes, one yoke and one stud serving to hold each pair of guides. The valve stem guides, which are very long and extend well into the valve housings, are screwed into place. The lower end of the valve spring rests on a washer supported by a pin passing through the valve stem. In case it is desired to remove the valves, the spring tension may be released by passing a forked lever under the spring seat or washer and resting the end on lugs cast on the cylinder wall for the purpose; by raising the lever against the washer and compressing the spring, the pin may be withdrawn and the spring allowed to extend and leave the valve free to pass up through its guide; the usual openings are provided over the valves for removal.

The cylinders have a bore of 4 inches and a stroke of 4 1-2 inches and are bolted to the two-piece aluminum crankcase; the upper half of the crankcase carries the three crankshaft bearings. These are of nickel babbitt, and are very long. The connecting rods are of H-section, and, as is shown in Fig. 1, the crankpin bearings are offset.

The make and break ignition apparatus, illustrated in Fig. 2, is operated by large cams carried on a special camshaft *B* on the side of the crankcase opposite to the valve camshaft. The ignition push-rods are lifted by the cams against spring pressure, a single spring being made to answer for each pair of rods; the spring may be seen in Fig. 2. The spring is placed midway between the two rods, its lower end anchored to a fixed point and the upper end attached to a yoke, the ends of which pass through slots in the push-rods. The ar-

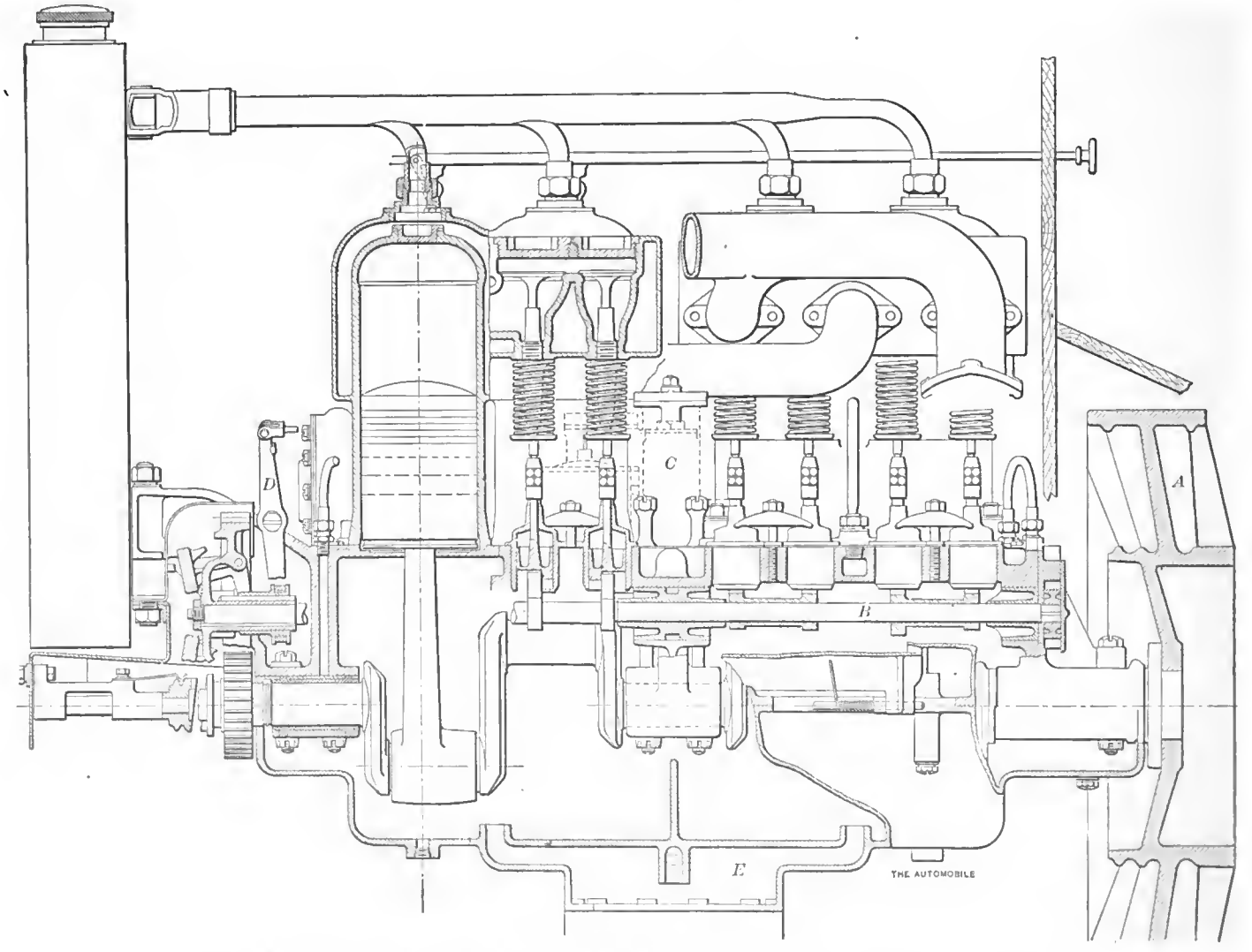
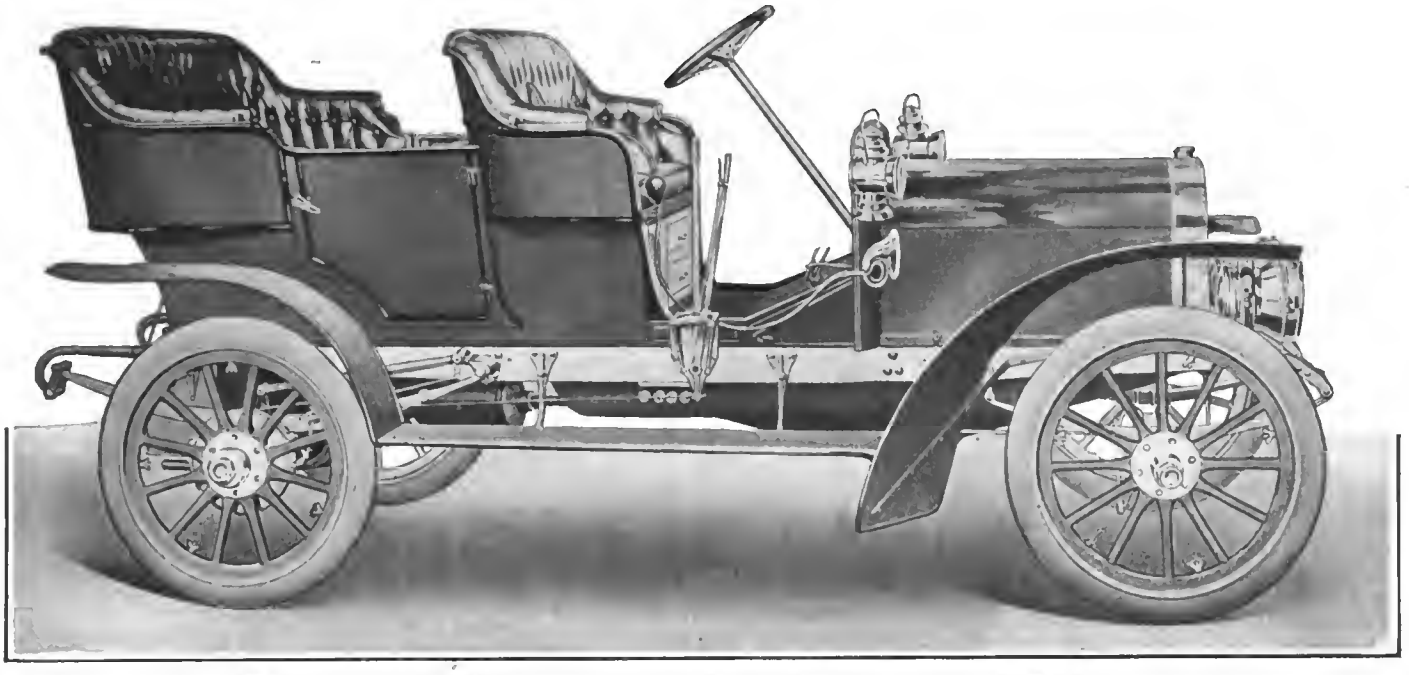


FIG. 1.—ENGINE OF 24-28-HORSEPOWER COLUMBIA MARK XLVI TOURING CAR, PARTLY IN SECTION



COLUMBIA 24-28-HORSEPOWER, FOUR-CYLINDER CAR FOR 1906, TO BE DESIGNATED MARK XLVI.

rangement is simple and avoids unnecessary duplication of parts. The igniter mechanism is carried on a plate and consists of a double-armed lever, one arm, called the hammer, being inside the cylinder, and the other outside; and an insulated stationary pillar, called the anvil, with which the moving arm in the cylinder makes contact periodically. The moving arm is normally held out of contact with the anvil by a helical spring outside of the cylinder. When the push-rod rises on the cam it raises the outside arm and brings the hammer against the anvil in the cylinder, closing the circuit and allowing the current to flow. The cam allows the push-rod to drop suddenly and the hammer breaks contact with the anvil with equal sharpness, causing a short, hot arc between hammer and anvil. The profile of the cams is so formed that by sliding the shaft longitudinally the time of the break is varied. A collar on the camshaft, a fork and a connecting lever, the latter being outside the crankcase and adapted for connection with the ignition control lever, serve to shift the camshaft.

The low-tension magneto, *A*, Fig. 2, is carried on a bracket cast integral with the crankcase about midway of the length of the motor on the ignition side, and is gear-driven. A single wire carries the current from the magneto to a bus-bar which makes connection with the insulated stationary electrode (anvil) of each igniter, the circuit being completed through the hammer, the motor and the metal of the magneto. The only wire used is the short piece connecting the magneto with the bus-bar; as there are no auxiliary devices, it will be seen that the ignition apparatus is exceeingly simple. Oil cups are fitted for the lubrication of the magneto shaft.

A new carbureter is used on both the 1906 four-cylinder Columbia cars, and is peculiar in being without springs and without a needle valve or other means of adjustment, according to the statement of the manufacturers. The carbureter is automatic, having auxiliary air inlets opened, as the speed of the motor and the suction increases, by a floating piston working vertically in a cylinder; as the suction decreases the piston falls by its own weight, cushioned by air in the bottom of the cylinder, and closes the auxiliary air holes. The size and weight of the piston are adjusted to a nicety at the factory. The throttle is of the barrel type and is placed horizontally in the mixing chamber at the point where the gas intake pipe leaves the carbureter. A pedal accelerator on the footboard operates the throttle, which is not connected with the governor in any way. The governor of the fly-ball type acts on a by-pass valve, separate from the throttle, and is regulated by a small

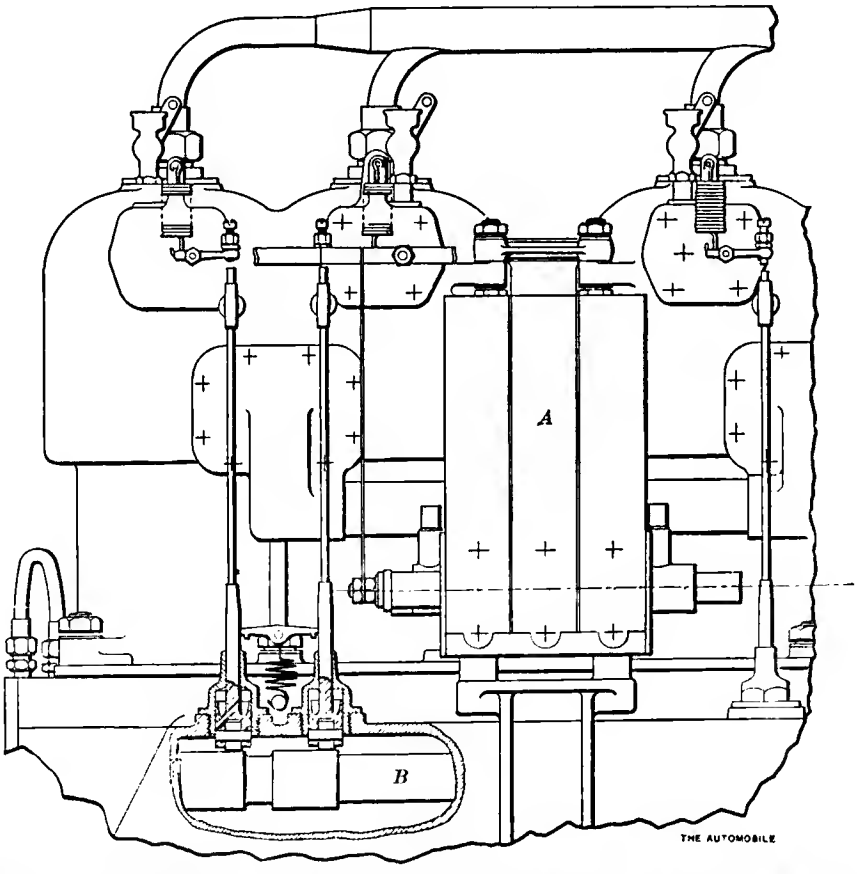


FIG. 2.—COLUMBIA MAKE AND BREAK IGNITION SYSTEM, WITH LOW-TENSION MAGNETO.

lever above the steering wheel, this lever, as well as the spark lever, remaining stationary regardless of the turning of the steering wheel.

A continuous circulation of lubricating oil is maintained by a gear pump driven from the valve camshaft. The pump is capable of working up to a pressure of 15 pounds to the square inch. Oil is taken from a reservoir, *E*, Fig. 1, cast in the bottom of the crankcase of the motor, and is pumped through conduits cast in the upper half of the crankcase, to the main crankshaft bearings, the camshaft bearings and the push-rod guides. The excess oil runs into the crankcase, in which the proper level is maintained by stand-pipes or dams. The oil overflowing from the crankcase returns to the reservoir, passing through a strainer as it descends, and is thus kept in constant circulation. Splash is relied on to lubricate the connecting-rod big end bearings; a slotted diaphragm in the mouth of each cylinder prevents an excess of oil from working into the cylinder and getting on the make and break ignition contacts. An auxiliary oil tank is hung on the frame; the car can be run about 400 miles on one charge of oil.

The method of making the crankshaft is the same for both the four-cylinder cars, and consists of roughing the shaft out of a solid slab of steel and working it down in the lathe; the final operation is the grinding of the journals, which is done with the greatest possible accuracy.

The cone clutch is peculiar in being of small diameter, the necessary friction surface being obtained by making the leather-covered face unusually wide. A small clutch is necessitated because the flywheel is formed with fan-blade spokes (*A*. Fig. 1).

Brass shoes are placed in the friction surface of the clutch, and are said to assist in giving a smooth, progressive engagement. A forward extension of the clutch shaft is carried in a bronze bushing inserted in a bore in the end of the crankshaft. The opposite end of the clutch shaft carries one-half of a universal joint, the other half of which is on the primary shaft of the transmission gear, Fig. 3.

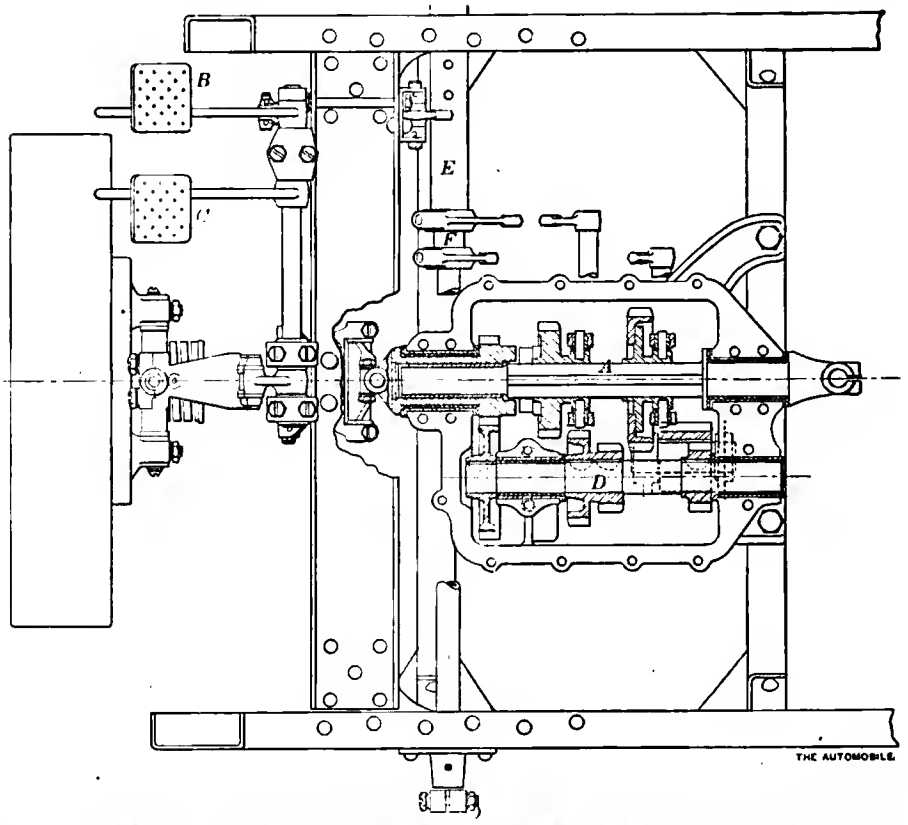


FIG. 3.—COLUMBIA SLIDING GEAR TRANSMISSION SYSTEM, SHOWN IN SECTION FROM ABOVE WITH COVER REMOVED.

The sliding gears give three forward speeds, with control by a selective lever. Two sliding gears, each mounted on a separate boss with collar and fork, are carried on the squared shaft, *A*, Fig. 3. First and second speeds and the reverse are obtained by meshing the sliding gears with the fixed gears on the secondary shaft *D*, while the third or highest speed is obtained by engaging a claw clutch, one half of which is formed on the forward side of the forward sliding gear and the other half on the rear end of the hollow forward part of the primary shaft, the drive then being direct, with shaft *D* running idle. The gears and shaft of the transmission are of a special chrome-nickel steel of great tensile strength. The manufacturers state that the tensile strength of the steel used for the gears, gearshafts, crankshaft and steering pivots is 225,000 pounds per square inch, while the elastic limit is 135,000 pounds per square inch.

The arrangement of the selective gear shifting lever is clearly shown in Figs. 4 and 5; the emergency brake lever is also shown, being the shorter of the two (*B*, Fig. 5). The two sliding gears in the square transmission shaft, *A*, Fig. 3, are operated by means of the usual collars and forks, the latter being connected to hollow shafts which may be engaged at will through the hand lever. The hollow shafts work one within the other and are shown in Figs. 3 and 4, marked *E* and *F*. Each carries at its outer end a short arm, one rising on each

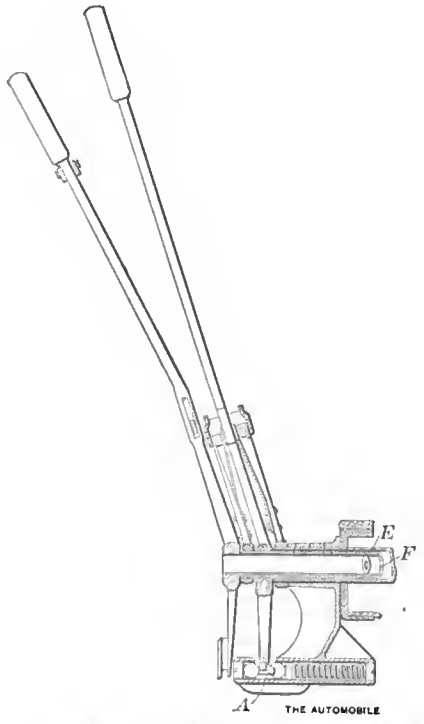


FIG. 4.—FRONT VIEW OF GEAR SHIFTING LEVER, PARTLY IN SECTION.

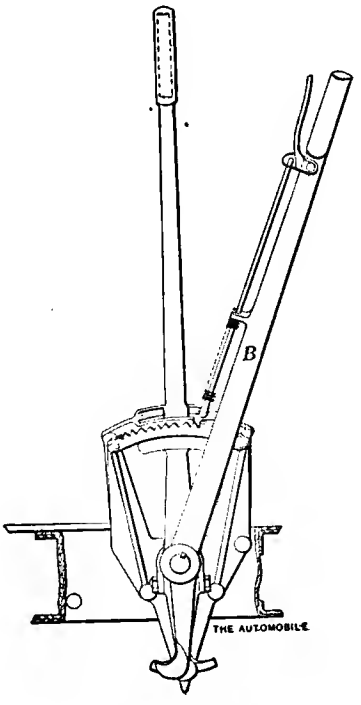


FIG. 5.—SIDE VIEW OF CHANGE-SPEED AND BRAKE LEVERS.

side of the hand lever. The third shaft, in the center of the smaller gear-shifting shaft, is the emergency brake shaft and extends to the opposite side of the car, carrying at each end connections for the brake cable. The arrangement of the shafts and the short arms is made clear by the engravings. Flat springs, one on each arm, press against the lever and keep it normally in a central position. By swinging the lever sideways from neutral position against the spring pressure it engages with lugs on the arm toward which it is moved, and the connecting shaft may be rocked and the sliding gear to which it is linked may be shifted; by again bringing the lever to the neutral position and swinging it in the opposite direction the other arm may be engaged and the other gear shifted. A downward extension of the lever carries a short sector in which are hollows to receive two balls, one pressed by a spring; when the lever is in the neutral position the balls hold it there with sufficient firmness to prevent its jarring out of position. The main advantage of the selective type of transmission gearing is that from neutral position any gear may be reached at once without going through any other gear, when there are but three speeds and reverse operated by a single lever.

Three-point suspension is employed in supporting the transmission gearcase, two arms cast on the rear end of the bottom half of the casing being bolted to a cross-frame, and a single lug in front bolted to another cross-frame. The bearings for the transmission shafts are extremely long and are of phosphor bronze.

A universal joint in the rear of the transmission gearcase joins the primary transmission shaft to the propeller shaft; another universal joint is placed at the junction of the propeller shaft with the short shaft on which is mounted the bevel driving pinion. The live shaft runs on roller bearings; the thrust of the driving gears is taken by ball bearings, one of which may be seen at *A*, Fig. 6. The rear wheels run on roller bearings. One of the wheels is shown removed from the axle and reversed, showing the roller bearings mounted on the tubular housing, and the castellated coupling by which the rear wheel is driven from the live shaft. The spring seats, one of which is seen at *B*, Fig. 6, and the other in the corresponding position on the opposite side of the axle, are made integral with the lugs on which the brake rocker arms are pivoted. The bevel gears and differential are carried in a housing, the top of which is removable, as the engraving shows. Both regular service and emergency brakes are carried on the rear hubs; the regular brakes are constricting bands closed on the steel drums by a pedal, and the emergency brakes are made with cast steel shoes which are forced against the interior surface of the drums by a side lever, the pull being transmitted by a steel wire cable. The bolts by which the drums are attached to the wheel hubs may be seen in the engraving.

A single-piece forging constitutes the front axle, which is of I-beam section;

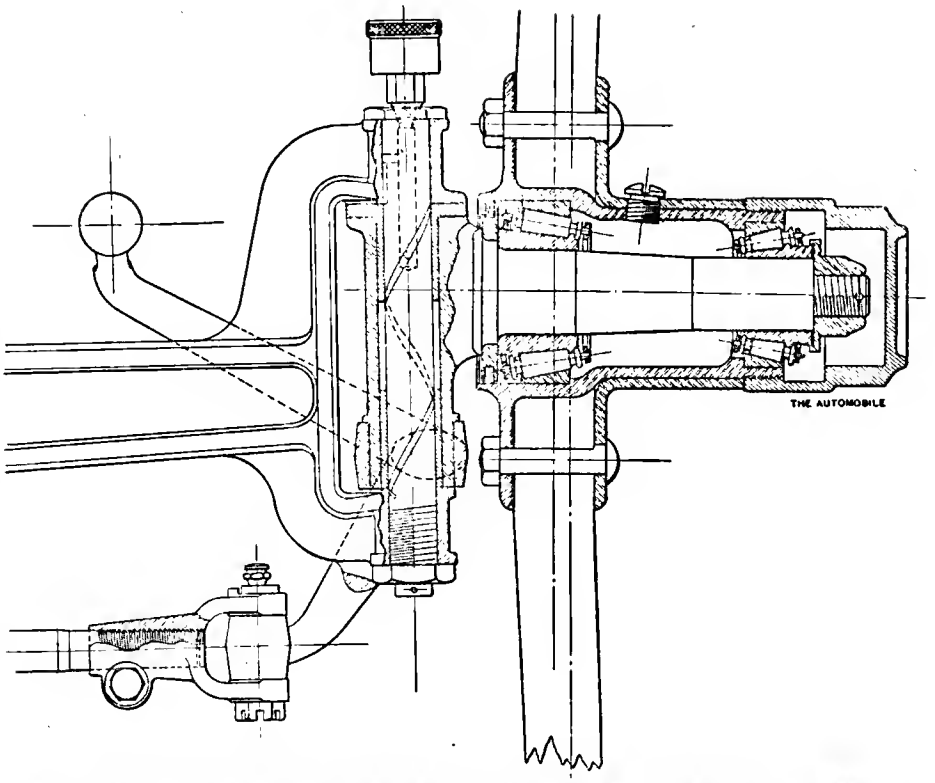


FIG. 7.—ROLLER-BEARING FRONT WHEEL AND STEERING KNUCKLE, PARTLY IN SECTION.

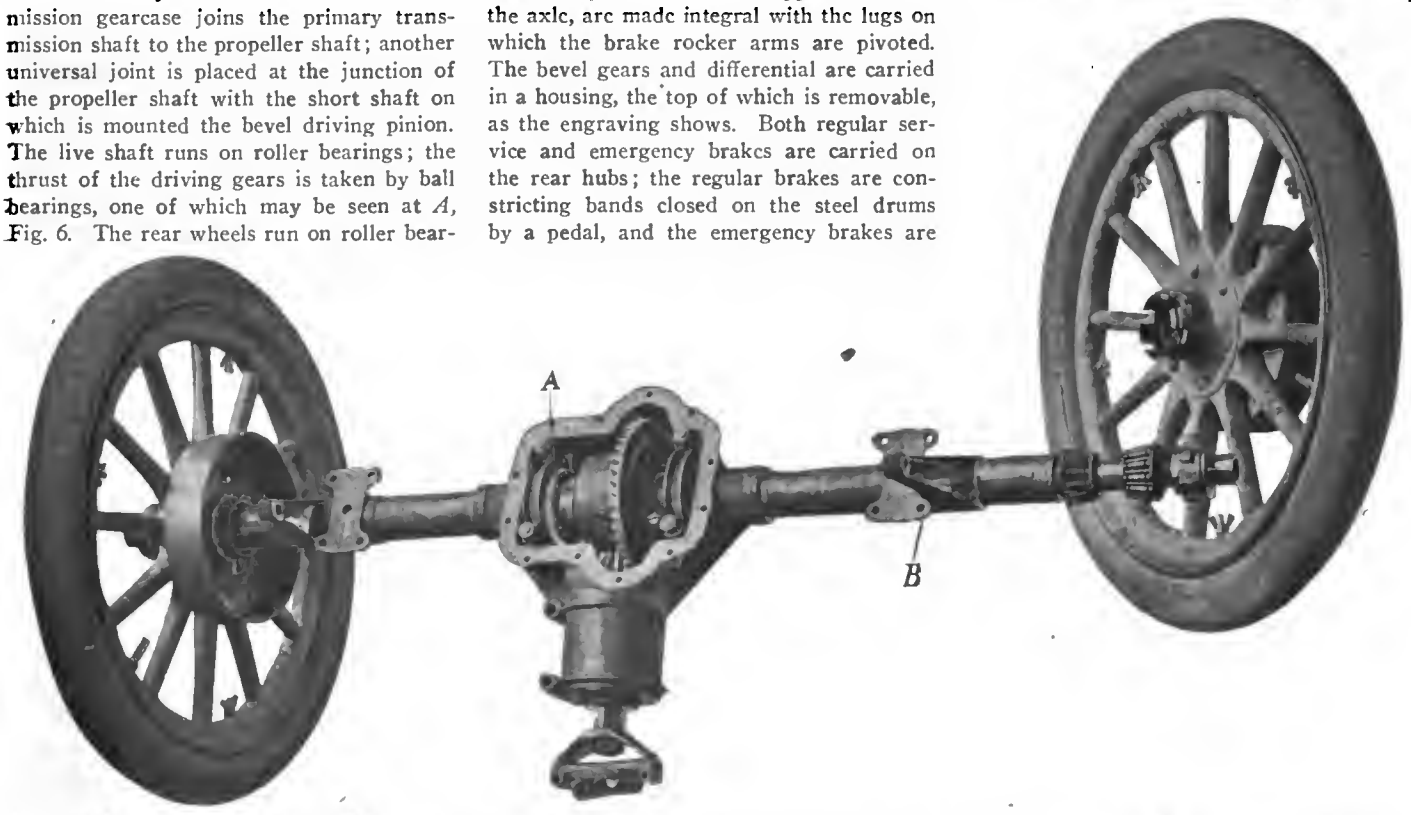


FIG. 6.—REAR AXLE AND WHEELS OF COLUMBIA MARK XLVI CAR, SHOWING ROLLER BEARINGS AND LIVE AXLE DRIVE TO OUTSIDE OF WHEEL.
A—Adjusting Collar for Ball Bearings. B—Spring Block and Brake Lug.

the steering knuckle and connections and the axle stub, with the roller bearings on which the wheel is mounted, are shown in Fig. 7. The frame of the car is of pressed steel, with heavy cross members riveted in place and the whole stiffened by large gussets.

The springs, all of which are semi-elliptic, are of great length; the illustration of the complete car shows this, the length of the rear springs being particularly noticeable. A metal pan encloses the lower part of the car from the radiator to a point in the rear of the transmission gearcase.

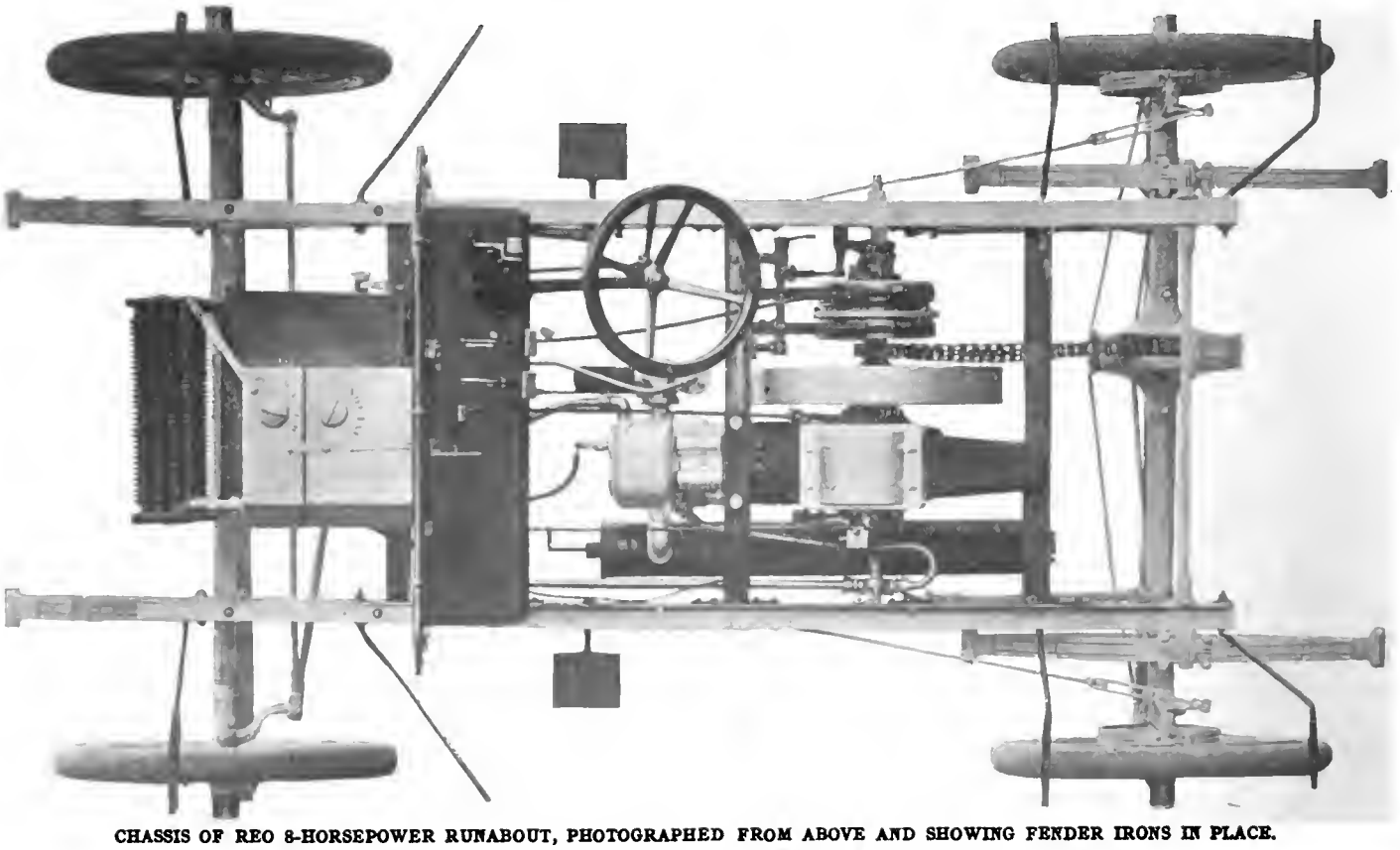
The design of the body, with its straight lines and overhanging seats, is clean-cut and attractive; it will be noticed also that the footboard has an unencumbered appearance, notwithstanding the three pedals. This is due in a large measure to the fact that the steering column passes through the dashboard. The tonneau door, which appears to be of good width, opens forward; the rear seat is designed to afford plenty of room for two adult passengers, while a third may be squeezed in on occasion. The wheelbase is 98 inches and the weight 2,250 pounds.

Reo Runabout with Folding Rear Seat.

AN excellent example of that peculiarly American light car, the single-cylinder runabout, is shown in the Reo 8-horsepower machine, illustrated and described herewith, manufactured by the Reo Motor Car Co., of Lansing, Mich. The Reo runabout is built to carry two passengers in the usual runabout seat, and two more on a folding rear seat, which can be supplied on order; the passengers all face forward. When the rear seat is not in use it folds forward and leaves a flush sloping rear deck with a brass railing. The propulsive power is supplied by a single-cylinder horizontal water-cooled engine hung under the body, driving the live rear axle through a planetary transmission and heavy roller chain.

The simplicity and compactness of the motor are well shown in the line engravings on page 666; a longitudinal vertical section is given, and also a cross section in the vertical plane of the crankshaft. The latter drawing shows the planetary transmission, which employs no internal gears, and the water circulating pump. It will be noticed that all the working parts of the motor are encased, this being well protected not only from dust and dirt, but also from accidental damage, while lubrication is effected under favorable conditions. The valves, located side by side on the top of the engine, are mechanically operated and are of equal size. Valve housings, cylinders and heads are cast integral with integral water jackets; the usual opening for the inspection or removal of each valve is placed opposite the valve. An ingenious method of inserting the valve stem guides has been adopted. Owing to the fact that the cylinder projects into the crankcase for a considerable portion of its length, the distance between the valve housing and the extension of the crankcase through which the valve push-rod passes is so short that a guide would have to be very short if screwed in from the outside, in the usual way. Very long guides are used, however, and they are screwed in from the inside, the guide being passed through the valve inspection opening and the valve port to its place; the arrangement will be at once understood if the drawing is referred to. The camshaft, driven by spur gearing from the crankshaft, lies directly above the latter. The gears are large in order to distribute the wear over a large surface, and, owing to this fact, the camshaft is higher than the valve stems; therefore the push-rods, which are directly actuated by the cams, are offset. The cam ends of the rods work in guides placed as close as possible to the camshaft, while the opposite ends are supported by guides placed in the wall of the casing. Rollers placed in the ends of the rods take the cam thrust. A flanged cap-nut screwed over the end of each valve stem serves to hold the valve spring in place and at the same time takes the thrust of the push-rod. Valve heads are of cast iron with steel stems, the heads being shrunk on the stems and the latter riveted over. The valves have an effective diameter of 1 9-16 inches.

The bore of the cylinder is 4 3-4 inches and the stroke of the piston 6 inches; the piston is 6 inches long and is fitted with three eccentric packing rings, held against turning by pins. The piston is light and is ribbed inside to give stiffness; the gudgeon pin is hung at the centre. The con-



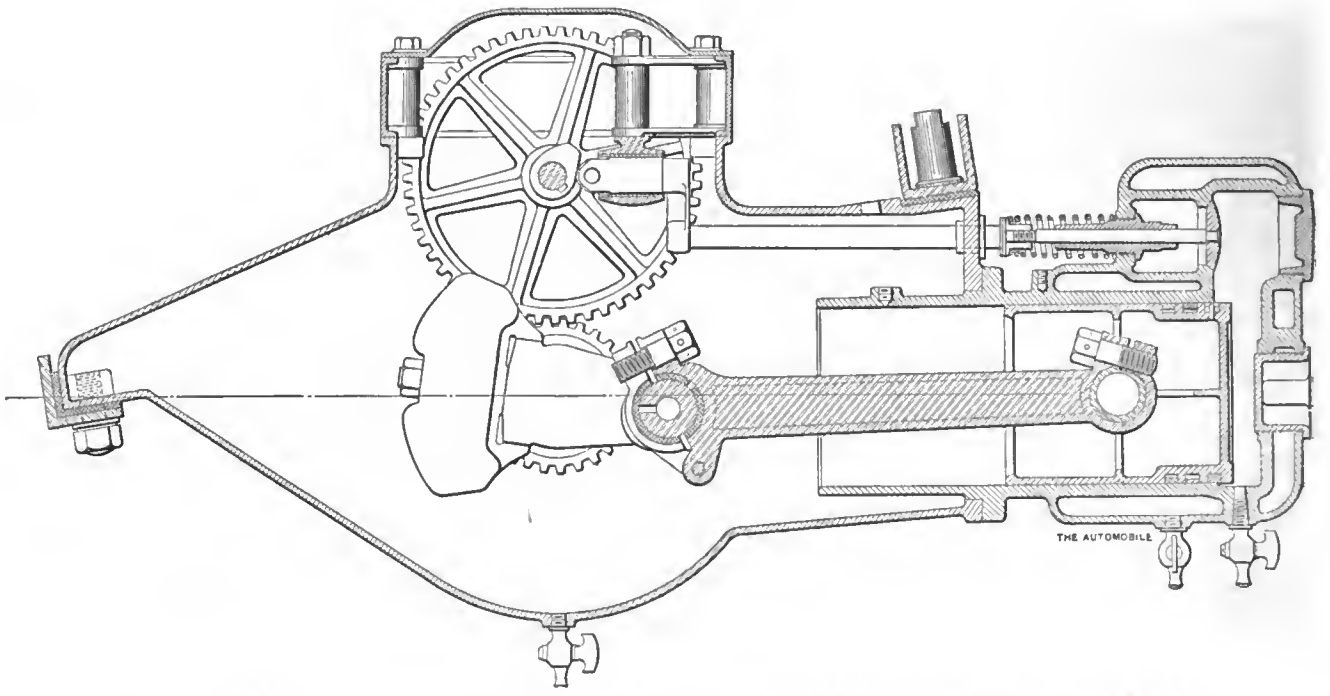
CHASSIS OF REO 8-HORSEPOWER RUNABOUT, PHOTOGRAPHED FROM ABOVE AND SHOWING FENDER IRONS IN PLACE.

REO 8-HORSEPOWER RUNABOUT FOR 1906, WITH REAR FOLDING SEAT OPEN FOR EXTRA PASSENGERS.

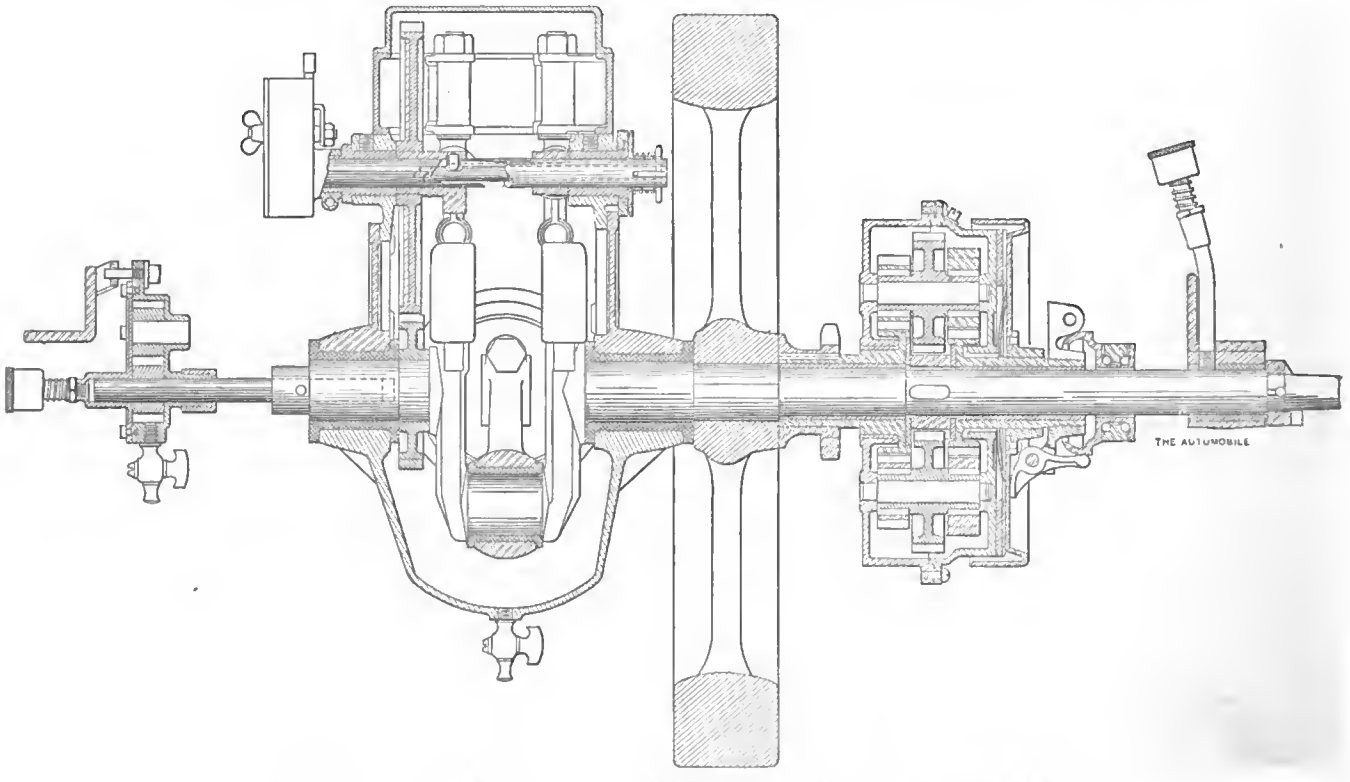
necting rod, 12 inches long, has adjustable bearings at each end; the gudgeon pin bearing is split on one side and fitted with an adjusting screw, while the crankpin bearing is split and hinged; the bolts are split-pinned. The crankpin is 1 9-16 inches in diameter and the bearing is 2 inches long; the gudgeon pin is 1 1-8 inches in diameter. Counterweights are bolted to the crank arms to balance the reciprocating parts, the balancing being done with great care, with the result that the motor runs very smoothly and steadily. The crankshaft is 1 9-16 inches in diameter at the main bearings; the bearing on the flywheel side is 2 3-4 inches long and the bearing on the opposite side 2 3-8 inches long. The spoked flywheel is on the right-hand side of the motor as it is hung on the car, and is 20 inches in diameter, with a rim of approximately rectangular section, 2 3-4 inches face and 2 1-2 inches deep. The crankshaft extends beyond the flywheel to the right side frame of the car, where it is supported by a bearing lubricated by a grease cup.

The planetary transmission gear is mounted on the shaft close to the flywheel, sufficient space being left between the gear-case and the flywheel for the sprocket and driving chain; the gearing gives two forward speeds and a reverse, and, as has already been said, comprises no internal gears. The shaft is reduced in diameter where it passes through the flywheel, again outside the flywheel and again in passing through the transmission gearing, leaving the diameter at the outboard bearing 1 3-16 inches. On the opposite side of the crank-case the shaft terminates near the bearing; it is direct connected to the spindle of the gear pump used to circulate the cooling water, the pump spindle passing into a hole

SAME CAR AS THE ONE ABOVE BUT WITH EXTRA SEAT FOLDED DOWN.



LONGITUDINAL VERTICAL SECTION OF REO SINGLE-CYLINDER, 8-HORSEPOWER ENGINE SHOWING CAMSHAFT GEARING.

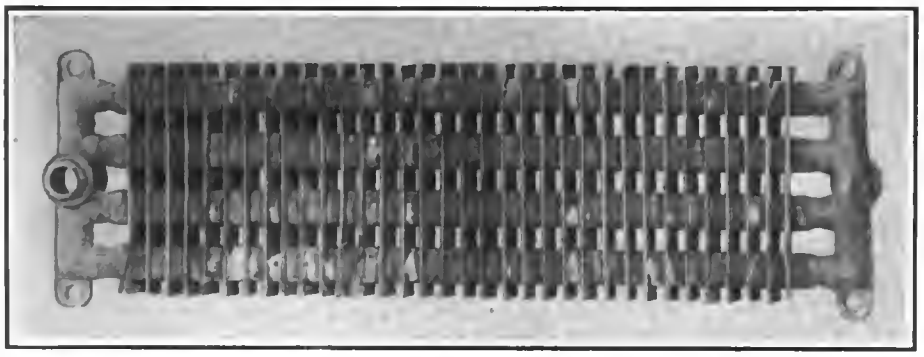


TRANSVERSE SECTION THROUGH REO CRANK CASE AND PLANETARY TRANSMISSION.

drilled in the centre of the shaft, where it is pinned securely. The pump is supported by a bracket attached to the left-hand side frame of the car and is lubricated by means of a grease cup. The crankcase, opposite the cylinder, is extended to form a support which is bolted to a pressed steel cross frame; the other end of the motor is supported from a similar cross frame at the point where the cylinder is attached to the crankcase; lugs cast integral with the crankcase take the supporting bolts. Ignition is by jump spark, two sets of dry cells furnishing the current; the coil is placed in the usual position on the dashboard.

The framing of the car is of angle steel, with pressed steel cross members riveted in place. The springs are three-quarter elliptic in front and full elliptic in the rear. The rear end of each front spring is provided with a slot in place of the usual eye, to allow for the movement of the spring as the wheels pass over obstructions in the road. The front axle is tubular and is straight throughout its length. The rear axle is built up of malleable castings, forming the differential casing, and steel tubes, pinned and brazed into the differential casing; the differential is of the bevel type. Roller bearings are fitted to the rear axle and also to the front wheels; the rear axle is held in position by two radius rods which maintain a constant distance between the crankshaft of the engine and the rear axle and keep the chain at the same tension at all times. Brakes are fitted on the rear hubs and are double acting, external bands, operated by a pedal.

Gasoline and water tanks, of rectangular



ONE OF THE TRANSVERSE COMPONENTS OF THE REO FLAT-TUBE RADIATOR.

form, are made of galvanized iron and are placed under a neat hood in front of the dashboard; the battery box also is under the hood.

The radiator, carried in the front of the open-ended hood, is made up of flat tubes with large fins; the tubes are horizontal and extend between vertical headers on each side. An advantage this form of radiator is said to possess is that, in addition to having a large radiating surface, it is not liable to damage from the freezing of water in the tubes, the flat tubes merely bulging slightly when ice forms. The total capacity of the cooling system is 3 1-2 gallons.

The wood artillery wheels are 28 inches in diameter and are fitted with 3-inch tires; the wheelbase is 78 inches and the tread 55 inches. Steering is by wheel, the gear being enclosed and protected from dust. The capacity of the gasoline tank is 6 gallons, and the mileage on this quantity of fuel is said to be 150 miles, under favorable conditions. The car weighs 975 pounds.

In addition to the runabout, the Reo Motor Car Company manufacture a five-passenger touring car with 16-horsepower double-opposed cylinder motor and a ten-passenger wagonette, using the same motor as the touring car. A new model is a coupé, mounted on the regular touring car chassis; the body is detachable, and the regular touring car body may be used interchangeably with the coupé.

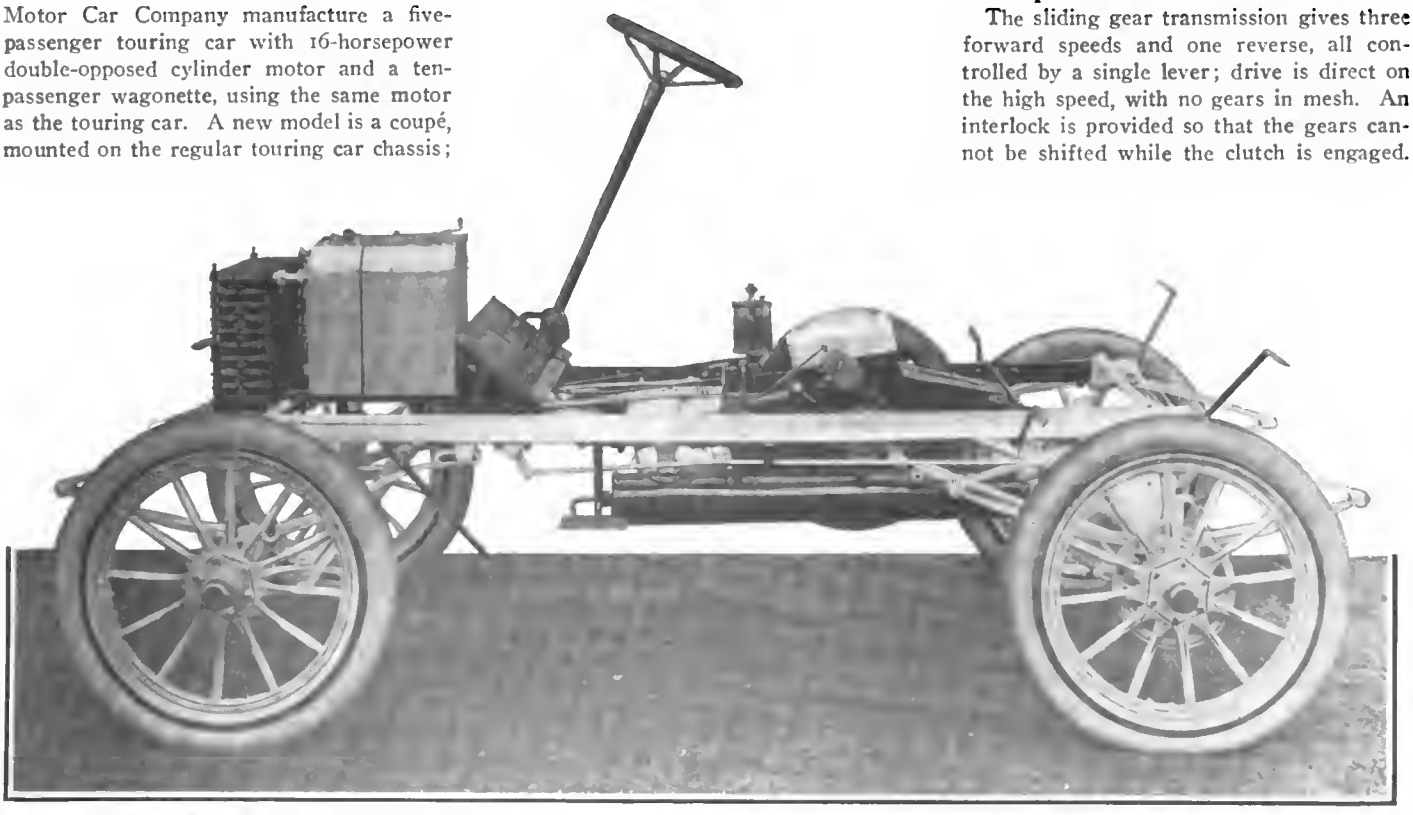
Moline Model C.

Three models will be placed on the market for the season of 1906 by the Moline Automobile Co., of East Moline, Ill., the smallest being a light touring runabout with detachable tonneau, the second a light touring car with 18-20-horsepower motor, and the third a large touring car with 30-35-horsepower motor. The cars are designated as models G, C and A, respectively. Model G has a double-opposed horizontal motor under the body, while the two larger cars have four-cylinder vertical motors in front. The four-cylinder cars are identical except in point of size; model C has cylinders of 3 3-4-inch bore and 4 1-2-inch stroke, 100-inch wheelbase, 32-inch wheels and 3 1-2-inch tires, while model A has cylinders of 4 1-2-inch bore and 5-inch stroke, 110-inch wheelbase, 34-inch wheels and 4-inch tires. All the parts of the more powerful machine are made heavier and stronger than in the smaller car. With these exceptions noted, the following description of Model C will answer for both four-cylinder cars:

The cylinders are cast in pairs and, as is usual in modern practice, have their heads, water jackets and valve chambers cast integral. After boring, the cylinders are reamed and then ground to a true cylindrical finish. Grinding is also employed in finishing the pistons, rings, crankshaft journals, crankpins and other wearing parts. There are four rings on each piston; three are placed above the piston pin, while the fourth passes over the ends of the pin, preventing it from protruding and scoring the cylinder walls. The aluminum crankcase is divided horizontally and the upper half carries the three bearings for the crankshaft, the lower half servng merely as an oil reservoir and being under no strain. Four arms, one at each corner of the upper half of the crankcase, support the motor and are bolted direct to the main side frames, no sub-frame being used for this purpose. The two-to-one gears, as well as the gears through which the centrifugal circulating pump and the fan are driven, are so arranged that steel gears mesh with fiber or rawhide gears, reducing noise from this source to a minimum.

Ignition is by jump spark, a quadruple coil being placed on the concave dashboard. Current is supplied by a 60-ampere storage battery and and auxiliary battery of dry cells, all carried in a box on the running-board on the left-hand side of the car. A Hill precision oiler lubricates the motor.

The sliding gear transmission gives three forward speeds and one reverse, all controlled by a single lever; drive is direct on the high speed, with no gears in mesh. An interlock is provided so that the gears cannot be shifted while the clutch is engaged.



SIDE VIEW OF REO CHASSIS, SHOWING COMPACT ARRANGEMENT OF THE POWER PLANT AND GREAT CLEARANCE BELOW.

The gearcase is of aluminum, with ample openings for obtaining access to the gears; the transmission shafts run in nickel babbitt bearings with ring oilers; provision is made to prevent the leakage of oil to the outside of the gearcase. Lubrication is effected by the mechanical oiler, which forces oil to the various frictional points. The clutch is of the regular leather-faced cone type, the leather being backed by flat springs to make the clutch engage gradually and without jerking.

Drive from the transmission gearing to the rear axle is by propeller shaft and bevel gears, the propeller shaft having a single universal joint. The propeller shaft and the live shafts of the rear axle run in roller bearings; the front wheels are mounted on ball bearings.

The framing of the car is of the usual pressed steel type, and both motor and transmission gearcase are attached directly to the main frames, no sub-frames being employed for this purpose. Both axles are of seamless steel tubing; steering knuckles are brazed and pinned into the ends of the front axle.

The spring suspension is of the three-point type, there being two full elliptic springs in the rear and a single transverse semi-elliptic spring in front. The road wheels are 32 inches in diameter, with 12 spokes each, and are fitted with 3 1-2-inch tires, purchasers being given an option on several makes of tires. The wheelbase is 100 inches.

All brakes are placed on the hubs of the rear wheels, a single drum on each rear hub carrying internal expanding rings, constituting the emergency brakes, and external constricting bands, used as the regular service brakes. The emergency brake is applied by a side lever and the regular brake by a pedal. The application of the service brake releases the clutch. Spark and throttle levers are placed on the steering column, while a pedal accelerator, controlling the throttle, is fitted. A small pedal serves to open the muffler cut-out. Brown-Lipe steering gear is used and is irreversible.

The body is of the straight-line type, with individual front seats and a wide, deep rear seat; the side doors are of good width. The dashboard is of metal, of concave form. Each car is sent out with an equipment consisting of oil side lamps, a horn and a full set of tools in the tool-box on the right-hand side of the running-board.

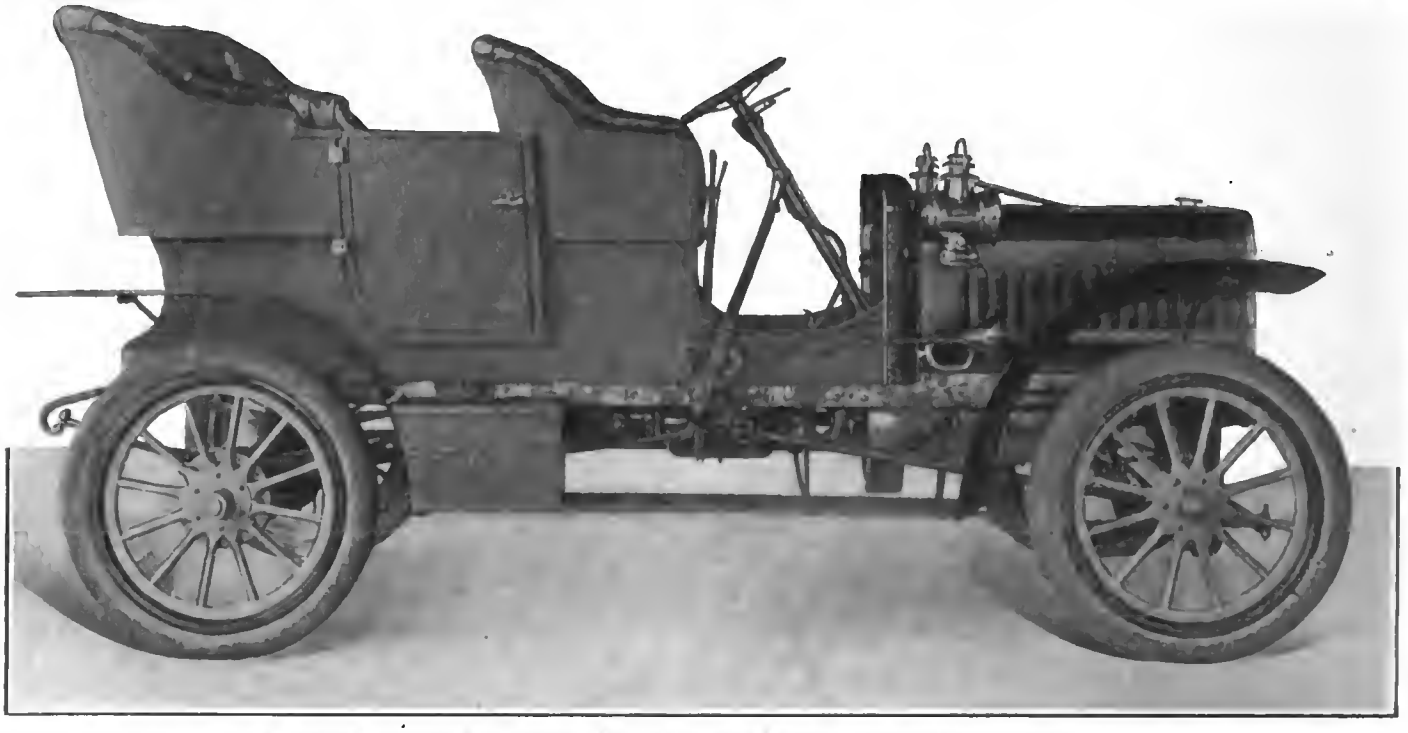
Iroquois Touring Car.

A single model, a large touring car with 25-30-horsepower motor, will be manufactured for the coming season by the Iroquois Motor Car Company, of Seneca Falls, N. Y. The car will be known as Model D, and in general construction will follow regular touring car lines, having a four-cylinder vertical motor, side-entrance body, with individual front seats, roomy tonneau and moderately long wheelbase. The weight is 2,400 pounds, and the maximum speed forty miles an hour.

The motor has four cylinders cast in pairs with integral water jackets, heads and valve chambers, and mechanically operated valves. Jump spark ignition is used and two sets of dry cells supply the necessary current. Throttling is effected by hand, as is also the regulation of ignition, the spark and throttle levers being placed on the top of the steering column, above the wheel. The carburetor is placed on the right-hand side of the motor and gas is led to the cylinders through a single straight pipe with a short branch leading off at right angles to each cylinder. The spark plugs are placed in the screw covers which close the valve inspection holes on the inlet side, and compression relief cocks are placed in the covers over the exhaust valves on the opposite side. Six arms are cast on the crankcase for the support of the motor and are bolted to an angle steel sub-frame which extends back and supports the transmission gearcase also.

The clutch is of an expanding type and the manufacturers state that it is free of all end thrust; it is operated by means of a pedal. The transmission gearing, of the clash type, gives three forward speeds and a reverse, with direct drive on the high gear; drive to the rear axle is by propeller shaft and bevel gears, there being two universal joints in the shaft. The transmission gearing is, as usual, enclosed in an oil-tight case and runs in oil, special provision being made for the lubrication of the shaft bearings. A large hand-hole in the top of the gearcase, covered by a plate, gives access to the interior. The universal joints are all large and substantial. The live rear axle runs on roller bearings. Radius rods pivoted on the main frames maintain the proper relative position of the rear axle. The framing of the car is of rolled steel, 3 1-2 inches deep throughout, including the end members; angle iron re-enforcing strips are riveted inside the main frames, and cross-members of the same material support the ends of the longitudinal sub-frames to which the motor and transmission gearcase are attached.

Springs are all full elliptic, the rear springs, of the scroll end type, being 41 1-2 inches long, and the front springs, made without scroll ends, are 36 inches long. The



MOLINE MODEL C 18-20-HORSEPOWER, FOUR-CYLINDER LIGHT TOURING CAR FOR 1906.

IROQUOIS MODEL D 25-30-HORSEPOWER, FOUR-CYLINDER TOURING CAR, WITH EXPANDING CLUTCH AND SLIDING GEARS.

road wheels are all 32 inches in diameter and are fitted with 4-inch tires; Timken roller bearings are fitted to all the wheels as well as to the live rear axle. Wheelbase is 100 inches and tread 56 inches.

The steering column passes through the straight dashboard and spark and throttle levers work in sectors inside the wheel rim. All main bearings are lubricated by a force feed lubricator, located in front of the dashboard; sight glasses are attached to the left-hand side of the engine.

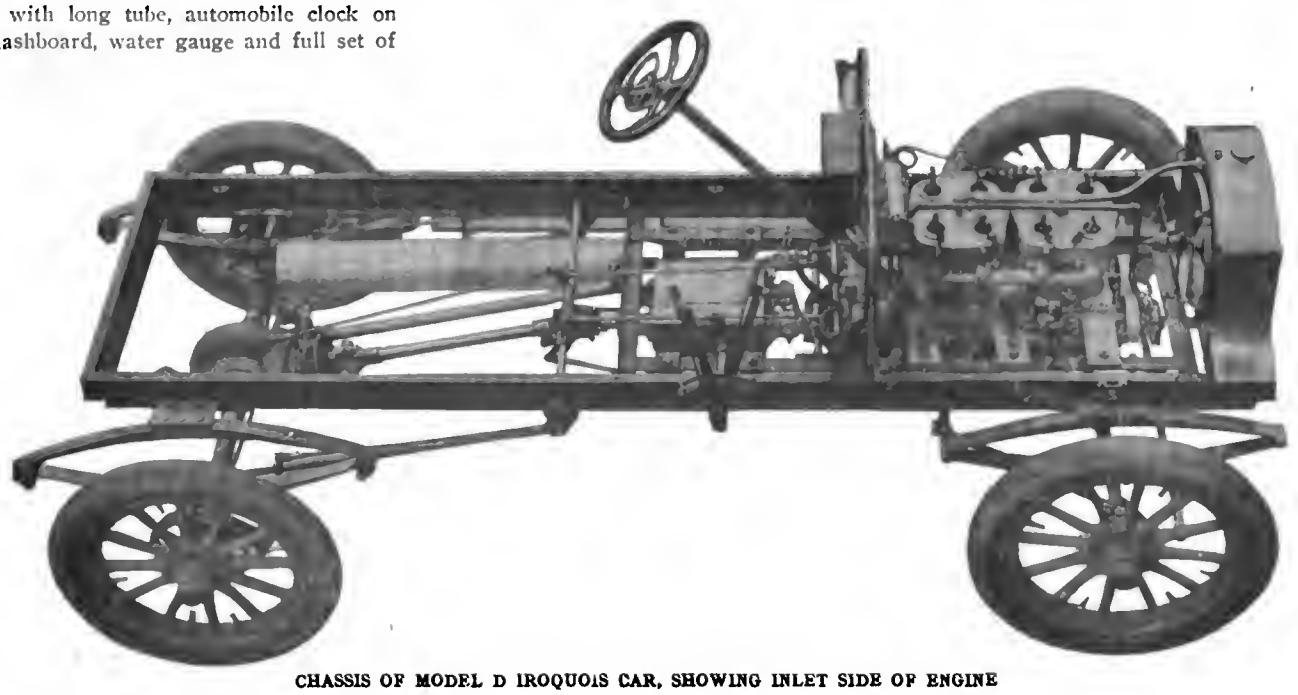
The body has the popular divided front seat and a rear seat roomy enough for three adults; the upholstering is of hand-buffed leather. The body is of wood and is finished in olive green with black moldings and wine-colored frame and running gear. The equipment of the car as sold is unusually complete, consisting of two oil side lamps, two gas headlights, an oil tail lamp, French horn with long tube, automobile clock on the dashboard, water gauge and full set of tools.

"American" Trucks.

In the accompanying engraving is shown a two-ton truck designed and built with especial view to transporting heavy castings, pipes and similar material over the rough and hilly roads in and around Lockport and Tonawanda, N. Y. Although designed for a load of two tons, it is successfully hauling as much as three and a half tons through heavy roads and up steep grades.

The engine has four vertical cylinders of 4 7-16 inches bore and 5 1-2 inches stroke. It is water cooled and the radiator contains 144 lineal feet of three-quarters-inch tubing. No fan is used. The steering gear is of the irreversible type, but of special design, and spark and throttle control levers are mounted on the steering wheel.

The builders of this truck—the American Motor Truck Company, of Lockport, N. Y.—realizing the objections to the sliding gear type of transmission for heavy industrial-vehicles, on which experienced chauffeurs are not likely to be employed, bent their efforts upon perfecting a suitable planetary transmission, with the result that they exceeded their own expectations, as they state, producing a gear that gives a speed range from two to twelve miles an hour and constant control of the vehicle. One of the claims made for it is that when changing from low to high speed the gear does not cause any sudden jerk on engine or car, either when light or fully loaded. A series of fiber discs in the high-speed clutch enables the clutch to take hold gradually, a certain amount of slippage occurring to prevent any sudden jerk. The gears used in this transmission are made of open hearth machine steel. The number of teeth varies



CHASSIS OF MODEL D IROQUOIS CAR, SHOWING INLET SIDE OF ENGINE

from eighteen to forty, of eight pitch and two-and-a-half-inch face. The gearing is designed and built with a view to long life.

A truck on similar lines to the foregoing, but of greater power, to be designated a three-ton truck, is to be regularly built for market and will be shown at the Chicago show in February. It will have a vertical four-cylinder engine of 5-inch bore and 6-inch stroke, with cylinders cast separately with integral jackets. Drop forged inlet and exhaust valves of 1 7-8 inches diameter are on the same side of the engine. By actual test this engine develops 32-36-brake horsepower, French rating. The pistons are of cast iron and the connecting rods of steel with bronze bushed bearings. The piston pin is 1 1-8 inches in diameter with 2 3-8-inch bearing, made of hammered machine steel. Four bearings support the crankshaft, three of them 2 3-4 inches long by 2 inches diameter and the fourth 4 inches long by 2 inches in diameter. Bearings are split on the horizontal and heavily babbitted, the babbit metal being hammered into place and bored. The flywheel, of heavy section 18 inches in diameter and with 4-inch face, is attached to a flange on the crankshaft by means of bolts carefully fitted in reamed holes. A 1-inch camshaft with three bearings is entirely enclosed in the crankcase, which is made of cast iron strongly ribbed, separating on a diagonal line, so that by removing the case cover the camshaft, connecting rods and crankshaft bearings are exposed to the greatest possible extent, great accessibility and ease of repair being thus secured. Aluminum is used for the crank housing cover for lightness in handling, and the cover is provided with a large glass peephole for conveniently inspecting the oil level. To prevent the oil from flowing to one end of the case, on hills and to insure uniform distribution of the lubricant, there are several ribs in the base of the casing. A drainage cock is provided for drawing of the oil when the cover is to be removed.

All parts of the engine are so designed and connected with dowels and lugs that if it becomes necessary to make any removals the parts can be replaced in perfect alignment.

TWO-TON "AMERICAN" STAKE TRUCK WITH FOUR-CYLINDER VERTICAL ENGINE.

Planetary change-speed gearing like that in the truck illustrated will be used. Drive will be by side chains of 3-4 inch width and 1 1-4 inch pitch, to 36-inch road wheels fitted with 5-inch tires. Four-inch tires will be fitted on the front wheels.

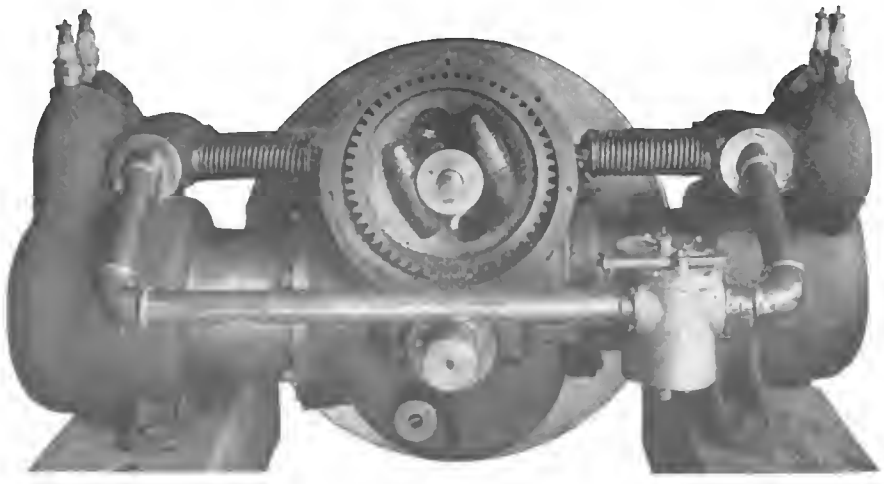
The lines of the new truck are to be somewhat neater than those of the wagon shown and the platform will measure 5 by 12 feet. The running gear is to be of standard tread.

Phillips Double Opposed Motor

The double-opposed cylinder governed motor illustrated and described herewith is designed for automobile work, and can be supplied with lugs for bolting to side frames for placing under the bonnet across the car, or with brackets for attaching to a subframe if the motor is placed under the body. The motor is rated at 12 horsepower and the makers state that it is suitable for cars weighing up to 1,800 pounds. The rated power is obtained at a speed of 1,125 revolutions a minute, when the piston speed is 750 feet a minute. Either sliding gear or planetary transmission can be supplied with the motor, or it can be obtained without either. The machine is manufactured by the Phillips Motor Works, of 131 La Salle street, Chicago.

The motor has double opposed cylinders of 4 1-2-inch bore and 4-inch stroke; the cylinders are offset in the usual way. Cylinder heads, water jackets and valve housings are cast integral; the valve housings are water jacketed. The crankcase is separate from the sylinders, which have flanges by which they are bolted to the case. The pistons are 5 inches long—an inch longer than the stroke. The connecting rods are 8 inches long and are cast of phosphor bronze; the crankpin bearings are of nickel babbitt and are 1 5-8 inches in diameter and 2 1-4 inches long, while the piston pin bearing is 1 inch in diameter and 2 1-4 inches long, bushed with phosphor bronze; the pin itself is made of Stubbs tool steel, ground. The crankshaft is 1 5-8 inches in diameter; the bearing on the flywheel side is 3 inches long and on the opposite side 2 1-2 inches long. The crank cheeks or slabs are heavy, being 1 inch thick and 2 1-4 inches wide, finished.

Valves, valve gearing, piping and spark plugs are all placed on top of the engine, where they can be easily reached. The valves are mechanically operated and are placed side by side; the usual inspection openings, closed by screw plugs, are placed opposite the valves. The camshaft gear, to which is attached the governor, is enclosed in a casing that can be easily removed; there is also a large opening in the top of the crankcase, closed by an aluminum plate. The removal of the gear casing permits the removal of the camshaft and with it the timing gear, governor and cams; the crankpin bearings can be adjusted through the opening in the top of the crankcase. The cams are of tempered tool steel and work against rollers 1 inch in diameter and 1-2 inch face, also of tempered tool steel. The pistons, connecting rods and crankshaft may be removed, without taking off the cylin-



PHILLIPS TWO-CYLINDER 12-14-HORSEPOWER MOTOR, WITH GOVERNOR CASE REMOVED.

ders, by removing the top half of the horizontally divided crankcase.

The governor is of the "fly-ball" type and is carried by the camshaft gear. The governor acts on the throttle through a sliding collar, a fork arrangd to oscillate a spindle placed at right angles to the camshaft, and a lever connected to the double throttle. The carbureter has a single float chamber and two mixing chambers, one for each cylinder, and a throttle valve is placed in each mixing chamber. A single rod connects the two valves, which are operated in unison by the governor. There are no springs on the governor inside the casing; there are two springs used, however, both being placed on the outside connections, between the governor and the throttle. The operator controls the speed of the motor by varying the tension of one of the springs; when the controlling lever has been set the governor keeps the engine running at the desired speed.

Four spark plugs are used, two to each cylinder, so that if for any reason one ceases to work properly the other will take up the work; both plugs work over a spark gap.

A gear, placed inside the crankcase, is fitted with a sleeve for attaching the water circulating pump, so that all the working parts of the motor are under cover and well lubricated.

By removing a plug in the end of either cylinder connections may be made with a pressure tank; the manufacturers state that with only a check valve and the necessary piping, a tank can be filled with air up to 75 pounds pressure. A special air pump can be supplied, to screw into the opening in the cylinder head, which will work up to a pressure of 200 pounds.

The total weight of the motor is 300 pounds, of which 102 pounds are in the flywheel; the flywheel is 17 inches in diameter, with webbed centre, and is finished all over. The overall length of the motor, from cylinder head to cylinder head, is 29 inches; total width, 17 inches; height from bottom of supports to top of timing gear case, 12 3-4 inches; distance from centre of crankshaft to bottom of crankcase, 4 5-8 inches. Water pipe connections are 3-4 inch.

A sliding gear transmission, giving three speeds and reverse with direct high gear drive, can be supplied with the motor on special order. The gear has a capacity for transmitting 20 horsepower; the control is by a single lever. Gears are of steel, hardened, and the casing is of aluminum. Total weight of transmission gear is 52 pounds; a steel hanger, weighing 8 pounds, can be supplied. The cone clutch, working into the flywheel, connects with the transmission gear through a shaft with flexible joint; weight of clutch, shaft and joint, 29 pounds.

A rather unusual feature in a motor of this type is that special attention is given to the exterior finish. The cylinders are rubbed, filed, finished smoothly and painted; flanges and cylinder necks, between the water jackets and the flanges, are machined and finished bright; piping is of polished brass. The cover plate on the top of the crankcase and the casing over the timing gear and the carbureter are of aluminum, the latter having polished brass mountings.

DISCUSSED TESTING METHODS.

More than a score of leading manufacturers were represented at the regular December meeting of the mechanical branch of the Association of Licensed Automobile Manufacturers, held last Friday at the association headquarters, at 7 East Forty-second street, New York. The regular subject up for discussion was the best methods of testing engines and cars before placing them on sale. Men in charge of the testing departments told of the methods in use in each of the factories, and from the all-day consideration of the matter it is believed that each factory has been put into possession of a knowledge of the best methods in vogue among all.

An even more important development of the meeting, which was presided over by Superintendent Coffin, of the Olds Motor Works, in the absence of Chairman A. L. Riker, of the Locomobile Company, was the reading of a report by Henry Souther, the A. L. A. M. laboratory expert, on the best grades of steel to be used for axles, springs and other parts, as shown by laboratory tests. The report gave detailed analyses of the metals, told the manner of their production, and gave practical hints as to how to work them with regard to their different qualities. Copies of this report are to be forwarded to all members of the association.

John A. Phelps, a flagman on the Chicago and Northwestern Overland Limited, has invented a separator for extracting sediment from gasoline. Phelps owns a gasoline hunting launch and he applied his own invention to the engine of his boat. He is now having made a model of his invention, and proposes to put it on the market.

DAVE HENNEN MORRIS, RECENTLY RE-ELECTED PRESIDENT OF THE AUTOMOBILE CLUB OF AMERICA, IN HIS 30-HORSEPOWER S. & M. SIMPLEX.

Letter Box

Auto Rigged for Hoisting.

Editor THE AUTOMOBILE:

[292.]—With this I am sending you a photograph of my auto rigged up as a hoisting machine. That is on week days; on Sundays we put on the regular body and take four or five passengers out for a pleasure spin. The machine is a steamer with a cylindrical gasoline fired boiler and an ordinary double cylinder link motion engine developing about 4 horsepower. The windlass attachment is carried on a special frame which is firmly clamped to the rear axle and driven by the sprocket chain which for the time being is removed from the driving sprocket of the car. The gear on the windlass gives a reduction of about 70 to 1 from the driving sprocket to the carved spool for the hoisting rope. I use the rig

AUTO RIGGED FOR HOISTING WORK.

chiefly for installing elevators. The windlass is jacked down from the elevator entrance, or it may be fastened in any convenient place to withstand the strain. The tackle I use is about 800 feet of 1 1-4-inch manila rope with a three sheave 10-inch pulley block and a two sheave 10-inch block, giving a leverage of 5 to 1. We generally run the engine with a boiler pressure of 50 pounds per square inch. The boiler is tested to 300 pounds. The boiler is fired with gasoline, and one man operates the entire affair.

With this auto hoist we have lifted 5,000 pounds 100 feet in forty minutes. In a recent installation of elevators at the John Deere Plow Works here, we lifted all the parts of two freight elevators—one a freight elevator of 5,000 pounds capacity and the other a passenger elevator of 2,000 pounds capacity—to the roof of a new eight-story building.

With the old hand method, it would take six men about six days to do the amount of work that one man can do in two days with the auto hoister.

When going out to a job, we load all the tackle and the windlass on the car, and it will carry the load to any part of St. Louis under its own steam. The fuel consumption in hoisting will average about five gallons of gasoline for 1 1-2 days' work.

A. A. STOLTZENBURG.

St. Louis, Mo.

Road Inspection Tour with Highway Commissioner MacDonald, of Connecticut.

Editor THE AUTOMOBILE:

[293.]—While attending a good roads convention at Lakewood, N. Y., last summer, I became interested in the man who had done more for the cause of good roads in this country than any other man of whom I know, with the possible exception of Henry Clay or Robert Gallatin, to whom the construction of the old National Pike was due; certainly he has done for his state—Connecticut—most thorough and fundamental work. He is the Hon. James MacDonald, State Highway Commissioner of Connecticut. Some states may have been able to reduce the interest rate; in Connecticut they reduce the grade and straighten curves of the highways, and I think this pioneer work might well be copied in other states. MacDonaldize the roads as well as macadamize them.

The promise was gladly given to accompany Mr. MacDonald to the actual workshop and inspect the transformation of old, crooked, hilly and hand-made roads, and in some cases merely rights of way, into beautiful, straight, broad, and, by comparison, level highways of machine-made precision, some with the final dressing of crushed stone, and others with the less expensive but, for the location, more suitable gravel surface.

The first work in the poorest districts is to take out the boulders. This has to be done anyway, whatever the nature of the future road surface, for even if the road is macadamized, any boulders in the sub-grade will cause an unequal compression and eventually necessitate repair at that point. You would be surprised to see how noticeable is the road with no stones, especially if the surface is a little soft. If a little more money is available, so that another stage of work can be undertaken, the shoulders of the road are pared down, the gutters cleaned out and culverts made. If there is yet more money to spend, the tops of the steep hills are graded down and the earth is used for filling in the road bed in the low places between the hills so as to reduce the grades, just as is done when grading for a railroad. Beside averaging the grade, important work is done in flattening out the curves and getting an unimpeded line of vision, having the overhead bridge abutments made parallel with the line of the road wherever they cross at an angle.

We inspected embankments over twenty feet high and one twenty-seven feet in height and more than a quarter of a mile long near Litchfield, which served both to cut down the steepest grade and straighten out a curve on the main highway through that part of the state. We drove along the shore of Long Island Sound to the quaint old town of Saybrook, whose main street is lined with stately elms, and had luncheon in a hotel more than 150 years old. We drove through the thinly settled portions of the state, through beautiful groves of tall pine trees, sighing in the wind far overhead and so still and quiet below that we felt a sense of delicious peacefulness as we glided along, and even stopped to more completely enjoy the charm of the place.

In many places the commissioner came upon work being done in a most improper way and soft, mouldy material being put in the road where it would rot out and leave a big hole. This was remedied at once by peremptory orders to the boss. At one place Commissioner MacDonald drove two miles off the road to shake hands with one of the supervisors. "You are the only man in the state," he said, "whom I ever knew to throw away the gutter wash." When material is worn out, new material with the necessary grit and bonding power should be spread on the road instead of simply increasing the amount of mud in the center of the road. If the commissioner had not been making an inspection by road, using the more customary railroad train, he would not have discovered the sort of work that was being done, and the places where the old, worn-out mud was being thrown back into the road would have become an increasing expense to the state and township. So it is safe to say that an inspection automobile is as important an item in the maintenance of good roads as a road roller.

In many places we stopped and talked with the local selectmen, all of whom knew the commissioner. One characteristic selectman, appointed as inspector to see that the specifications were carried out and to give the local farmers training in scientific road making, was smarting under his ignored protests to the contractor about the gutter line. "Gol durn him," he said, "I told him it warn't straight. It's so crooked, if a black snake tried to follow it he'd snap his darned tail off."

Among the things to be considered in road building that are fully as important as the physical requirements, such as drainage, grade, alignment and surface, is the human element. First, the natural prejudice to any new idea or innovation must be overcome, then the farmers' coöperation must be enlisted, and, finally, matters must be so adjusted that all will realize some advantage. It is as hard, however, to make content the man whose house has been left high above the new road grade as it is to satisfy the old lady who sees an embankment with precipitous sides just in front of her door, and wonders how she is going to climb up on to

the highroad when the embankment is covered with ice and snow.

The distance we traveled was over 350 miles in five days. We went into nearly seventy townships and the commissioner made thirty-one actual inspections. The total cost of the trip was $15.05, including all charges for transportation, oil, gasoline, storage and washing, omitting only depreciation and wages, making a cost of $.0214 cents per passenger mile, as compared with a charge of $1.50 for a horse for each inspection, and say $10.00 railroad fares—possibly more—as the railroads do not cut across country, and two weeks, the ordinary time required to make the inspections because of time lost waiting for trains and in making connections. In fact, Commissioner MacDonald told me he had never seen so much of the state road system as a connected whole and never realized that it was possible to cover the whole state in such a short space of time.

AUGUSTUS POST.

New York City.

Four Cycle H. P. Formula.

Editor THE AUTOMOBILE:

[294.]—I send you a formula for rating gasoline engines. The formula is entirely empirical and I have found that the results obtained by it correspond very well with practice, and therefore I think it might be of general interest. The formula is:

$P = \frac{R}{1000} \times S \times D$ 1-23; where

P = horsepower developed
R = number of revolutions per minute
S = stroke in inches
D = diameter in inches.

In this shape the formula is for four-cylinder four-cycle engines, and its only drawback is the fact that it requires the use of logarithms, which, however, is not very serious, as every engineer is familiar with them.

C. P. S.

Cleveland, O.

An automobile is rigid economy compared with a wife.—Minnesota Paper.

Fred—I hear that measly little Timsel has become an automobilist. What car has he got?

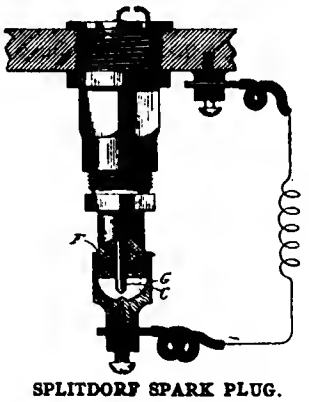
Tom—Not any. He just bought himself a leather suit, fur coat, etc., and joined the club.—*Exchange.*

Patents

Spark Plug.

No. 806,017.—C. F. Splitdorf, of New York City.

A plug having a binding post *G* in the form of a metal cap attached to the end of the porcelain, and with a spark gap between



SPLITDORF SPARK PLUG.

it and the insulated stem *C*. By threading the binding post on a sleeve *F* attached permanently to the porcelain, the length of the gap is adjustable and the porcelain can be cheaply replaced.

Engine Suspension.

No. 805,442.—F. H. Bogart, of New Britain, Conn.

A structure designed to avoid the necessity for a loose coupling between the engine and gear box by ensuring positive alignment between the two. To this end a base is built up, as indicated by *1 4 8 9* rigidly connecting them and forming the lower halves of the crankcase and gear box; and this is supported at four points *a b c d*, so that it will not be affected by distortion in the frame.

Rear Axle Construction.

No. 805,567.—T. J. Lindsay, of Indianapolis, Ind.

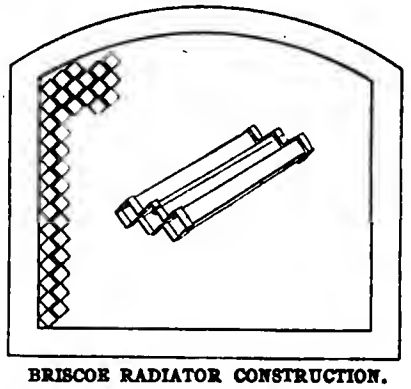
An axle so designed that the differential and attached parts can be taken out without disturbing the axle shafts which connect with the rear wheels. In the drawing, *14 15* are the axle shafts, and *G G* are short shafts integral with the main gears of the differential. These turn in sleeves on the differential shell, which is supported independently of *G G* by bearings *X X*. Connection between *G G* and *14 45* is made by the loose jaw couplings *17 17*, which are so formed (as shown in the detail sketch) that, when turned to the position shown, the differential with its bearings *X X* can be lifted out vertically. The casing *12 13* is split horizontally and the lower half is secured rigidly to the axle sleeves *10 11*.

Radiator Construction.

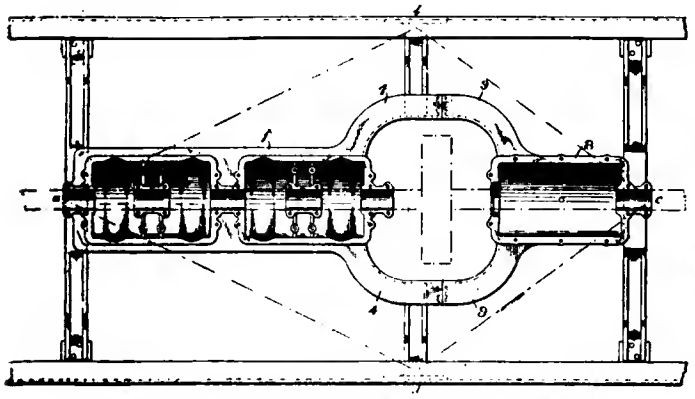
No. 804,926.—B. Briscoe, of Tarrytown, N. Y.

Instead of building up a honeycomb radiator of separate square tubes, having their ends expanded, so that water spaces will be provided between adjacent tubes, these tubes are stamped up in groups of two or three from sheet metal, as shown in the detail, thereby saving labor in assembling.

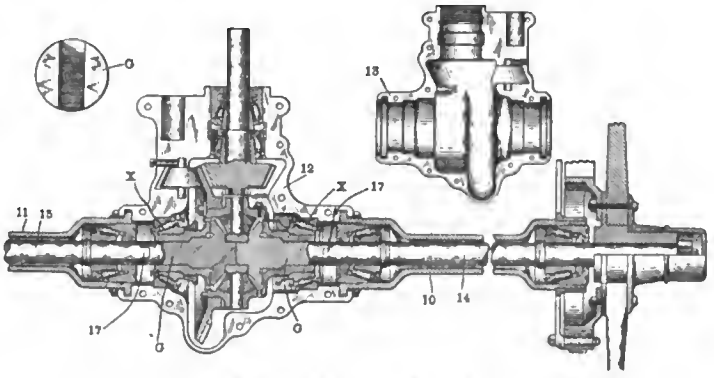
Although the number of autos owned and operated in Michigan is estimated at more than 5,000, only 2,935 licenses have been taken out to date under the law passed by the last legislature. The number of new licenses being issued is not large enough to more than keep up with the growing number of new owners. The law directs the sheriffs and police officials to see that no one operates an auto without first securing the necessary state license, and some steps may be taken toward compelling all owners in the state to comply with the requirements of the law.



BRISCOE RADIATOR CONSTRUCTION.



BOGART UNITED ENGINE AND GEAR CASE.



LINDSAY REAR AXLE WITH EASILY REMOVABLE DIFFERENTIAL.

THE AUTOMOBILE

VOL. XIII. No. 24

Published every Thursday by
THE CLASS JOURNAL CO.,
Flatiron Building, Madison Square,
NEW YORK CITY.

Cable Address - - - - Autoland, New York
Long Distance Telephone - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2 00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 5 o'clock p. m. Monday for the issue of Thursday following.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies printed in 1904, - - - -	639,300
" " This Issue, - - - -	14,000
" " Since Jan. 1, - - -	702,000

Federal License Bill. Edward Morrell, Member of Congress, capitalist and a resident of Philadelphia, is the sponsor of a bill introduced in Congress ostensibly for the purpose of regulating interstate automobile travel. The provisions of the bill are published on another page in a report from our Washington correspondent, which states that the proposed measure has been referred to committee. Owing to the pressure of serious work before Congress, it is highly improbable that the bill will be reported back during the present session. Of all the measures, local and state, that have been proposed for the regulation of automobile travel on the highways, this is certainly the most extraordinary, with, perhaps, the single exception of the humorous, though really ridiculous, Kansas law.

A superficial reading of the Morrell bill gives the impression that its purpose is to compel the tourist to take out a federal license, paying $50 for the privilege of being examined by a technical expert, who would draw a salary of $1,200 a year and expenses. A more careful analysis, however, reveals some inconsistencies that suggest a legislative "joker." For instance, it provides that any person violating the act shall be deprived of his license, while a violation of the act is to operate a machine in interstate travel without a license; consequently, the punishment of a violation would be to take away from the autoist something he did not possess—a federal license. In the first paragraph the bill provides that "On and after January 1, 1907," its provisions shall go into force, while it ends with the clause that the act is to take effect from and after its passage. And these discrepancies are quite outside of the fundamental question of constitutionality.

It is barely possible that the interests back of the bill may be seeking light on the subject and would welcome a visit of an influential automobile delegation with *power to act*. Certainly its sponsor, as an associate of the wise and good Matt Quay, and a Congressman of many terms, is not unfamiliar with legislative routine, and can make a fair estimate of the opposition this extraordinary measure will encounter.

✷

Appearances at National Shows. Preliminary announcements of the managers of the National shows for 1906 in New York and Chicago indicate that the coming year will mark a great change in the general appearance of the expositions. This is certainly a much-desired change and doubtless owes its beginning to the good example set in this country by the Importers' Salon in New York last season.

Expositions are chiefly valuable for their educational influence on the public, and the importance of a proper setting for an exhibit, singly or in the aggregate, is well understood by those expert in show management. It is especially necessary in an automobile show that something be done on the esthetic side of the problem, for at such a show the public is asked to pay entrance money to see that which it is expected to buy. In the ordinary place of entertainment, such as the theater, it is the spectacle itself that the visitor pays to see, whereas in the automobile show the admission fee is only a preliminary to a larger expenditure for the articles on exhibition.

Unfortunately the limitations of space in the available public buildings are such as to make it practically impossible to include certain features that would contribute to the entertainment and comfort of visitors. Of these the most serious loss is in ordinary seating capacity which would enable those who attend to rest in comfort in the intervals of sightseeing. Something in this way can be done, however, by individual exhibitors, though the familiar crowding of exhibition cars with spectators is often a cause of embarrassment to those who wish to examine the cars themselves.

It is within the power of the management of National shows to do much more than has ever been done before, and there seems to be no disposition to shirk the responsibility. The complete automobile in its varied colors and artistic outlines lends itself to any well-considered scheme of decoration. The better the machine the greater need of an appropriate setting. If an equal advance is made in the musical features at the several expositions and in the very ordinary and necessary convenience of adequate cloak rooms, there will be good reasons for congratulations all around.

✷

Nails on the Highway. Nails scattered on the roadway spoiled the last day's regularity run in the voiturette touring contest held by the Automobile Club of France in the vicinity of Paris, as reported in our foreign news pages. Of all dastardly acts aimed at users of automobiles, the scattering of nails on the roadway is perhaps the most despicable, for not only will sharp nails puncture pneumatic tires and disable a car, with possible dangerous results in the case of an inexperienced driver, but they are likely to cause the death of horses and other animals. No wound is more likely to prove fatal to a horse than that caused by a rusty nail picked up by its hoof in the road.

As a rule, those who are guilty of this crime against man and beast realize its despicable nature, and under cover of darkness, plant the roadway. Not so, however, in the case of the publishers of a farm paper called *The Gleaner*, published in Detroit, Mich., a center of automobile progress. In a recent issue of that paper. to which our attention has been called, the relation of the farmer and the automobile is commented upon, and the suggestion cold-bloodedly made that the rural telephone will prove a great aid to the farmer who wants to sow nails in the road. The article advises that "when a fellow comes along with a machine, causing runaways, passing with a grin, just telephone to the neighbor a mile down the road and tell him to trot out with a board filled with nails, lay it on the track, points up, and the 'dare devil' will soon come to grief." The farmer, it adds, can make it "mighty interesting" for the fellow who has no regards for the rights of others.

Doubtless the writer of this advice thought it a clever bit of play to the gallery, for further on in the article he admits that many drivers get excited at the sight of an automobile, thus exciting the beast and causing more trouble than had the driver remained calm.

We have no defense for the man in the automobile who disregards the rights of others. For his extinction there is always an adequate remedy at law in case damage is done. From personal experience, however. from the testimony of others, and from reading much correspondence on the subject, we are convinced that the rural road hog is quite as numerous and as well distributed as the automucker. And as to making it interesting for the other fellow, *The Gleaner* probably forgets that two can play that game. What would the publishers of this precious advice say were an automobile publication to recommend the use of strychnine for farmers' dogs, and violence to other domestic animals that endanger the safety of automobile travel on the highways—animals

that unaccompanied by any person have no rights whatever on the road other than humanity would suggest.

The publication of such stuff, if not an infraction of law, is at any rate a very serious mistake, and we do not doubt that the very persons it is aimed to please will be the first to denounce the infamous suggestion.

CIRCULAR TRACK ON THE ICE.

MINNEAPOLIS, Dec. 11.—A circular track for automobile racing on the surface of a frozen lake is the unique scheme now being considered by a number of Minneapolis autoists. In the park system of the city near the city limits is beautiful Lake Harriet. The plan is to build on the ice of this lake a circular cinder track sixty feet wide and about three miles in circumference.

Many owners of cars desire to have Saturday matinees on much the same plan as is followed by the turfmen who have an ice track across the lake in the winter. It is thought that some interesting automobile events could be run off.

An auction sale of automobiles was held at the Peerless Garage in West Forty-first street, New York, last week hy the Auto Auction Association of America. A large number of cars, in apparently good condition, were displayed on the floor and there was a good attendance. Bidding was not very spirited, however, and it was not always possible to know whether a sale was really made or not, as the auctioneer did not declare the owner's price. Among the cars knocked down was an 18-28-horsepower 1904 Mercedes for $3,000, a 35-40-horsepower Peerless 1905 model for $2,250 and a Locomobile 22-horsepower 1904 model touring car for $1,600. Every lot was "sold as exhibited, without warranty." Another sale under the same auspices is announced for the show week in New York.

An inspection of the New York School of Automobile Engineers by members of the American Society of Mechanical Engineers took place last week during the meeting of the society in New York. In a recent issue we discussed at length the organization and objects of the school at 146 West Fifty-sixth street, and since then the machinery and special equipment have been installed. The various functions of ignition, carburation, cooling, and motors and driving gear are made plain to the students by actual working parts of well-known makers. This is supplemented, also, by complete cars, with and without bodies. One car mounted on rollers is run just as though it were on the road for the special purpose of demonstrating gear changes. The equipment was examined with great interest by the visitors who dropped in at their own convenience throughout the day.

Girls must learn to bear disappointment **when** out automobiling, for it is not **a proposal when their escort gets down on his knees; it is only to crawl under the old machine.**—*Exchange.*

Bill Empowering Interstate Commerce Commission to Issue Federal Automobile Licenses.

WASHINGTON, D. C., Dec. 11.—Automobilists throughout the country will be deeply interested in a bill introduced in Congress this week by Representative Morrell, of Pennsylvania, to regulate the operation of automobiles between the states.

In effect it provides that on and after January 1, 1907, it shall be unlawful for any person owning or operating an automobile or other motor vehicle, whether the motive power be electricity, steam, gasoline, or other source of energy, to operate the same for business or pleasure along the public highways of any state, territory, or dependency of the United States, or in the District of Columbia, so as to pass from one state into another state, territory, etc., without first passing a special technical examination as to his ability to control the machine with precision and safety, and obtaining a license or permit to operate such automobile between the states from the regular constituted authorities of the United States, as set out in the following section:

"That the Interstate Commerce Commission of the United States shall have power to conduct the examination prescribed by this act, under such rules and regulations as may be required, and shall appoint a technical expert to test the personal fitness, practical ability, and mechanical knowledge of any applicant, owner, or operator of any automobile or other motor vehicle as aforesaid, at such times and places as it may determine. Said technical expert shall be certified by the Civil Service Commission of the United States to the Interstate Commerce Commission, and shall receive a salary of $1,200 per annum and $4 per diem for expenses while absent from Washington in the necessary discharge of his duties."

The bill further prescribes that every owner or operator of an automobile who passes a satisfactory examination before the technical expert shall be licensed by the Interstate Commerce Commission to operate automobiles between the states and territories and the District of Columbia; and that such license shall be good for three years from the date of its issue, and may not be renewed without examination. Every owner or operator of any automobile who shall pass the required examination shall, before receiving his license or permit, pay into the United States Treasury the sum of $50.

Whenever it shall appear that any owner or operator of any automobile or other motor vehicle, so licensed to operate automobiles between the states, has been convicted on three several occasions in any federal, state, or municipal court of violating the act, or any state or municipal law governing automobiles, the Interstate Commerce Commission shall, after proper notification, cancel and revoke the license of said owner or operator and shall not reissue the same.

Any driver violating the provisions of the proposed law will be liable to a fine of not less than $500 nor more than $1,000, to be recovered in any district court of the United States in the district where the violation occurs. The act is to take effect from and after its passage.

This remarkable bill, which is numbered 385, has been referred to the House Committee on Interstate and Foreign Commerce. Its radical provisions will undoubtedly arouse the ire of every automobilist who has a fondness for touring, and automobile clubs and individual automobilists throughout the country will probably fight to the last ditch, if necessary, to prevent the enactment of Representative Morrell's drastic measure.

As a matter of fact, the Interstate Commerce Commission now has more than it can do to keep the railroads of the country in the straight and narrow path, and to place touring automobiles under its jurisdiction would about swamp the commission. The Morrell bill is simply the outcome of the "regulating" craze that has struck the Fifty-ninth Congress, and, like hundreds of other "regulating" measures, it bids fair to slumber in the files of the committee on interstate and foreign commerce.

PRAY FOR RELIEF.

Philadelphia Club Seeks to Enjoin City from Enforcing License Law

PHILADELPHIA, Dec. 11.—A bill in equity enjoining the city of Philadelphia and its officials from enforcing, on and after January 1 next, the provisions of the ordinance of December, 1902, relative to the issuing of automobile licenses, was filed in Common Pleas Court last Saturday by Attorney Ira J. Williams, on behalf of Secretary-Treasurer H. Bartol Brazier, Charles S. Wurts, Jr., and Samuel Y. Heubner, members of the A. C. of Philadelphia.

The bill sets forth in detail the diametrically opposite provisions of the city ordinance and those of the new state law, which goes into effect on January 1. The city law calls for one tag; the state measure for two. The city's Bureau of Boiler Inspection claims the right to issue licenses; so does the Automobile Bureau of the State's Highway Department. Different rates of speed are provided for by each law. The state law makes it a misdemeanor for an automobilist to carry on his vehicle any tags but the two issued by the state; the city ordinance says the municipal tag *must* be displayed, but does not bar others. State licenses cost $3; city licenses cost $2 the first year and $1 for every succeeding year.

A few weeks ago, in reply to a communication asking for an opinion, Attorney General Carson plainly stated that the State law superseded local laws, and concluded by saying: "Any attempt to carry a license tag not furnished by the Automobile Bureau of the State Highway Department is a direct violation of the law."

On the other hand, City Solicitor Kinsey of Philadelphia, says Mr. Carson is all wrong; that no automobiles will be allowed on the streets of Philadelphia unless they carry the city's license number. From Mr. Kinsey's viewpoint, it doesn't matter how many tags are carried, so long as one of them is secured from the proper city department—in this case the Bureau of Steam Boiler Inspection.

In order to save local automobilists from the annoyances to which they would be otherwise subjected, a temporary injunction is prayed for, to be made permanent if the court so decides.

A committee of the Philadelphia Trade Association is assisting the club officials in the matter.

The action is declared to be an amicable one, but as the city's Bureau of Boiler Inspection has taken in upwards of $5,000 from license fees on the $2 and $1 basis, it can be seen that the state, charging $3 for every license, has approximately $10,000 at stake, while to the city it means a loss of $7,500 at least if the court decides that the state law is paramount.

A peculiar feature of the matter is that local automobilists generally favor the state law, while motorcyclists, who under that measure are classed as automobiles, prefer the city ordinance. This state of affairs is mainly due to the provision of the state law which requires all motor vehicles to carry a rear light in addition to the usual headlight. The motorcyclists aver that a light so carried on a motorcycle will subject them to great danger in the event of a leak in the fuel tank, which in many types of motorcycles is carried in close proximity to the only place where a rear light could be affixed. In any event, the rider would be directly over such a light.

PROTESTED AGAINST ARRESTS.

CHICAGO, Dec. 9.—A party of members from the Austin Automobile Club appeared before the West Park Board of Commissioners recently to protest against the many arrests of automobilists that were being made on Washington Boulevard west of Garfield Park as a result of a petition presented by Rev. P. J. McDonnell, of the St. Mel's Roman Catholic Church. The petition was drawn up by a body of citizens after an accident to an old woman who was knocked down in front of St. Mel's Church, although it is shown by the records that the automobile was going at a slow rate of speed at the time.

Sydney S. Gorham, secretary of the Chicago Automobile Club, was with the party which visited the board, and he spoke in favor of allowing machines to travel at the rate of twenty miles an hour. He stated that he thought the time would come when the driver could use his own discretion as to what speed to use. Toward the close of his remarks he said that it was practically impossible to drive an automobile which was fitted with a powerful engine at a speed as low as ten miles an hour.

The commissioners held another view of the matter. President Eckhart said that the law in its letter must be obeyed. He compared automobiles with locomotives, which, he said, were forced to run on elevated tracks through the city, while automobiles did not even have flagmen.

"I do not think that ten miles an hour is unreasonable," continued Mr. Eckhart. "The time may come when people are more familiar with machines, and a high speed will not be as dangerous as it is now."

OWNERS' PROTECTIVE ASSOCIATION.

BOSTON, Dec. 11.—Another step in the campaign against the enforcement of the Massachusetts automobile law for purposes of revenue is announced with the first public statement of the Automobile Owners' Association. This is a new organization, at the head of which is Frederic Tudor, a prominent member of the Massachusetts Automobile Club and until recently an officer of the Bay State Automobile Association. The treasurer is John M. Graham and the counsel Francis Hurtubis, Jr.

The object of the association is "to protect owners of cars from unjust arrest, and also to prevent reckless and dangerous driving." In a statement which has just been issued the purposes of the association are set forth as follows:

"It is intended to try all complaints for alleged overspeeding, as well as to appeal such cases where proper; and the association will provide attorneys for so doing without cost to each member in excess of the annual dues. By this means it is hoped that towns shall be dissuaded from making indiscriminate arrests and deprived of the revenue which convictions in such cases produce, as in all cases appealed the fines go to the county and not to the town.

"It shall be the duty of each member of the association to see that his car is carefully operated, in order to manifest his desire to respect the rights of the public to the full enjoyment and use of the highways, and to dispel the prejudice existing against owners of automobiles.

"Only owners of automobiles in good standing will be admitted. The annual dues of membership shall be $10, payable in advance."

NEW LAW NEEDED IN DELAWARE.

WILMINGTON, Dec. 11.—Last Wednesday night a fine new automobile owned by John J. Satterthwaite was taken, in some mysterious way, from the garage in which the machine has been kept. It was located the next morning in Newcastle, disabled and abandoned, and was towed to this city, a distance of five miles. The police began an investigation and, as a result, have arrested a young white man on suspicion of being connected with the affair. If evidence warrants, he will probably be charged with larceny, in the absence of any other charge that will fit the case.

There is now a law making it a punishable offense for a person to drive off a horse without the consent of the owner, and it is likely that a similar law will be enacted with respect to the automobile.

OHIO STATE LAW WANTED.

CINCINNATI, Dec. 11.—An appeal is to be made to the Ohio legislature this winter to pass a new automobile law that shall provide for uniform speed limits throughout the state and by requiring a state license abolish the municipal license ordinances of this city and Cleveland and Toledo. The Cleveland and Columbus automobile clubs have agreed to join the Cincinnati club in the movement. Efforts are to be made to revive the Ohio Automobile Association and secure the coöperation of all automobile organizations in the state.

Plans are being perfected for the holding of a big meeting of Ohio automobilists in this city to discuss matters of common interest.

FIVE-MILE TRACK PROJECTED.

INDIANAPOLIS, Dec. 11.—A movement is on foot in Indiana, backed by prominent automobile people, to establish a five-mile automobile track in Indiana. It is planned to make the track one of the finest in the world.

Automobile manufacturers and dealers of this city have already subscribed $7,000, and the matter is now ready to be presented to the dealers and manufacturers throughout the state.

An effort was made to secure an option on the old horserace track at French Lick Springs, but it failed. It is thought now that the promoters will have to lease or purchase a tract of land and build the track. One of the men pushing the venture is Carl Fisher, an Indianapolis dealer and driver, who says that an attempt is being made to obtain a tract of about 800 acres. The track, he says, will be five miles in circumference.

Mr. Fisher, by the way, will enter five of the twenty-six Ormond races. He will drive a National car, which is now being built for him.

REGISTRATIONS IN INDIANAPOLIS.

INDIANAPOLIS, Dec. 9.—Although the season is well advanced toward winter, there seems to be no falling off in the registering of automobiles at the office of the City Controller. Figures given out at that office recently shaw that 363 cars have been registered in Indianapolis since January 1, 1905, and it seems possible that the number will reach 400 before the close of the year.

OFFERS THREE TOURING PRIZES.

BALTIMORE, Dec. 11.—J. H. Friedenwald, a prominent citizen of this city, who has been identified with amateur horse racing for many years, has offered to donate three beautiful cups as trophies for the winners of three automobile contests, whose general nature he has briefly outlined. The plan, as suggested, is more for endurance runs than for road races and the routes selected are as follows:

Baltimore to Washington and return; Baltimore to Gettysburg and return; Baltimore to Frederick, thence to Hagerstown and return.

Mr. Friedenwald stipulates that the entries must be touring cars, must carry five passengers each, and at least five cars must start in each event. He will furnish the timers, and the only expense to the contestants will be the cost of operating their machines.

The date for holding the contests will be left to the local automobile organization, which will undertake their management. Mr. Friedenwald hopes that his efforts will give a further stimulus to automobiling in Maryland.

NEW BAY STATE QUARTERS.

BOSTON, Dec. 11.—The Bay State Automobile Association will hold a house warming in its new quarters in Auburndale next Thursday. The association has been located for about a year at the Hotel Lenox, in Boston. Recently, however, it secured a part of a hotel in Auburndale and will use this for club rooms during the winter months. Connecting with the rooms which will be used for social purposes are bowling alleys and a billiard-room, and meals will be served by the hotel management. The hotel, The Woodland Park, is near the Newton boulevard, which is the main thoroughfare of automobile travel to and from the west and southern sections of the state.

WORCESTER CLUB'S RAPID GROWTH.

WORCESTER, MASS., Dec. 11.—The first meeting in the new rooms of the Worcester Automobile Club was that of the membership committee last week. A large number of names proposed for membership had to be acted upon. The list was so large that the membership limit had for the third time within the year to be increased half a hundred. Thirty-seven applications were reported upon favorably.

President John P. Coughlin, of the Worcester A. C., has invited President Speare, of the Bay State Association, to make this city the meeting place for the presidents of the seven Massachusetts clubs who are to be called together this month for a discussion of legislation.

BUFFALO CLUB TICKET.

BUFFALO, Dec. 11.—The annual meeting of the Automobile Club of Buffalo will be held in the club rooms on Monday evening, December 18, when the election of officers for the ensuing year will be held. Augustus F. Knoll, president during the past year, has declined a second term on the ground that business matters require all of his time. At a recent meeting of the board of directors the following ticket was nominated:

For president, H. A. Meldrum; for vice-president, F. B. Howard; for secretary, Dai H. Lewis; for treasurer, Charles Clifton; for board of directors, E. H. Butler, E. R. Thomas and Seymour P. White.

NEWS NOTES OF THE CLUBS.

CHICAGO.—It is practically certain now that a large number of members of the Chicago A. C. will attend the races at Ormond, Fla., in January, as Manager Charles A. Meade has received several applications from persons who want to make the trip. Two machines at least from Chicago will enter the races, as C. A. Coey has a big Thomas racer which he intends to take with him, and a large Premier of Ralph Temple's is also ready for the journey.

BUFFALO.—The annual meeting and banquet of the Buffalo Automobile Trade Association will be held in the rooms of the Automobile Club of Buffalo on Friday evening, December 15. The following ticket has been nominated: For president, J. A. Cramer; for vice-presidents, W. C. Jaynes and G. H. Poppenberg; for secretary, D. H. Lewis and John Frey; for treasurer, John J. Gibson; for executive committee, E. C. Bull, J. B. Eccleston, E. B. Dennison, N. P. Baker, P. W. Eigner, John Frey and Cal Paxton.

BROOKLYN, N. Y.—At the recent annual meeting of the Long Island Automobile Club, the following officers were elected to serve during 1906: President, Alfred Wilmarth; vice-president, Edwin Melvin; secretary, Walter G. Pierson; treasurer, Charles Jerome Edwards.

NEW YORK.—The annual meeting of the New York Motor Club will be held Thursday evening, December 14, at 8 P. M., in the rooms of the club. The nominating committee, in accordance with the constitution, has posted the following regular ticket to be voted for at that time: For president, W. J. P. Moore; for vice-president, H. M. Swetland; for second vice-president, R. H. Johnston; for secretary, A. B. Tucker; for treasurer, Frank J. Griffin. A board of directors will also be elected.

THOMAS OCCUPIES NEW PLANT.

BUFFALO, Dec. 11.—Without waiting for its completion, the E. R. Thomas Motor Company, of Buffalo, has occupied a part of its new factory. Rather than delay shipment, the mechanics were placed at their benches on the first floor of the new concrete building before all of the floor had been laid, and, while cars were being finished on the first floor the last touches were being put on the roof.

The new building is in the shape of an irregular L and is 190 feet by 195 feet, and three stories high. When the final work is done, it will be one of the finest automobile factories in the country.

Particular attention has been paid to the lighting arrangements, and when they are all in, the windows of the new plant will make it resemble a huge greenhouse.

New and improved machinery has been installed, and with the occupation of the new buildings, the plant will allow the use of the most up-to-date methods in every line.

It will be possible, as soon as the whole building is completed, to start the parts of an automobile down one row of benches on the first floor, and so make a circuit of the room, and when it comes back the chassis will be completed and an appreciable saving in time will be made.

COMING CHICAGO CHANGES.

CHICAGO, Dec. 11.—A number of changes will be made in the locations of automobile dealers in this city in the next few months. Among them are noted the following:

The Ford Motor Company will move on February 1 to its new building at 1444-46 Michigan avenue.

C. A. Coey will move on January 1 to his new headquarters at 1424-26 Michigan avenue. He will also open a new branch and garage at 1710-18 Indiana avenue on the same date.

The Greer Motor Car Company will move on May 1 to its new building at 1417-19 Michigan avenue.

On February 1 the McDuffee Automobile Company will move to its new building at 1501-5 Michigan avenue.

The Excelsior Supply Company will move on February 1 to its new building at 1436-38 Michigan avenue.

"Automobile Row" in Chicago presents a new appearance with all of these fine, new structures and shows the prosperity of the trade in this city.

RECENT INCORPORATIONS.

The Austin Auto Company, Newark, N. J.; capital, $25,000 Incorporators: Herbert Austin, Thomas G. French, Jr., Charles Krebs.

Birdsall Automobile Company, New York, capital, $10,000. Directors, E. T. Birdsall, W. T. Swazey, Jr., and E. C. Boyce.

Franklin Automobile Agency, New York; dealers in automobiles, etc.; capital, $500. Incorporators: Edward S. Griffing, George A. Burkhard, John D. Craig.

Metropolitan Auto Company, New York; manufacture automobiles, auto boats and vehicles; capital, $25,000. Incorporators: S. F. Randolph, J. M. Belin, H. H. Colbath.

St. Louis Motor Car Company, Peoria Heights, Ill.; capital, $100,000; manufacturing motor vehicles. Incorporators: M. A. Sattley, M. Eaton, M. M. Kelner.

C. A. Mezger, Inc., New York; manufacture motors, engines, machinery, etc.; capital, $5,000. Incorporators: Minnie Mezger, Raymond M. Owen and Zoe Owen.

Drake Electric Company, Chicago, Ill.; capital, $10,000; manufacturing auto and electric appliances. Incorporators: James M. Wilson, William Herrick, Frank E. Drake.

News and Trade Miscellany.

Two of Chicago's most enthusiastic autoists have decided to drive their own cars at the Ormond-Daytona races next month. Dr. H. E. Thomas will race his big Locomobile, which finished third in the Vanderbilt cup race with Tracy at the tiller, and C. A. Coey will drive a new Thomas Flyer which he has lately received from the factory.

An order for three twenty-eight-passenger auto 'buses and one five-passenger touring car has been received by the Knox Automobile Company, of Springfield, Mass., from the West Indies Transportation Company, of Havana, which has been using eight Knox cars in Cuba for the past year, with satisfaction and profit.

Two 8-10-horsepower single-cylinder Knox panel-top delivery wagons were delivered last week to W. M. Whitney & Co., an Albany clothing concern.

The Indianapolis Automobile Racing Association is planning for a number of race meets to be held next summer and fall. The recent meet, despite numerous postponements, was a greater success than anticipated, and Indianapolis enthusiasts expect to have some fast races next season. A meeting will be held in a few days to make further arrangements.

E. J. Pennington, of Chicago air shop and subsequent English war automobile fame, has bobbed up again in Toledo, where, it is understood, he is trying to organize a company to manufacture automobile parts after his own ideas, on which he holds patents. It is asserted that he is at present having machinery made for the manufacture of a new style ignition plug and has closed a contract with a local manufacturing concern for the manufacture of the plug. Mr. Pennington's last previous appearance in the automobile line was in Cleveland, where he induced a machine company to undertake the construction of a huge 208-horsepower road juggernaut with a locomotive "cow-catcher" in front. So far as is known, this never got so far as a successful test on the road.

Guy Vaughan, the race driver, has gone to Europe to visit his father in England, and while abroad will attend the Paris show and superintend the exportation of Decauville cars to be exhibited at the Madison Square Garden show.

At a recent meeting of the stockholders of the Midgley Manufacturing Company, of Columbus, O., the following officers were elected to serve during the ensuing year: Thomas Midgley, president; E. A. Cole, vice-president; C. S. M. Crumm, secretary; F. W. Flowers, treasurer and general manager.

Manager Durphey, of the Electric Vehicle Company, has established a chauffeurs' employment bureau in connection with his automobile business. By making a careful examination into the past experience and character of each applicant, Mr. Durphey hopes to climinate many of the incompetent and careless chauffeurs. No charge is made to either chauffeurs or automobile owners for services of the bureau.

Ralph A. Coburn, formerly manager of the Randliff Motor Car Company, Boston, has accepted a position with the Morrison-Tyler Motor Car Company, Boston agents for the Maxwell cars.

The Deere-Clark Motor Car Company, a new concern recently incorporated in Moline, Ill., is now erecting its plant, and announces that it will place on the market a 22-horsepower, two-seated car, which will list at $2,000, to be known as the Deere. The company will have, in connection with its establishment, a half-mile testing track, on which new cars may be tried out before being offered on the market.

The new plant of the Wolverine Automobile and Commercial Vehicle Company, at Dundee, Mich., is now in operation. The main building is 48 by 135 feet and two stories high. The smaller building consists of a blacksmith shop, boiler room, electric light plant and testing room. Work has already been begun on the 1906 models. The company will make a specialty of the commercial vehicles and is turning out a roomy delivery wagon and a capacious truck. The company is employing 60 men at the start. The output for the first year is to be more than 250 machines. The officers of the company are: President, Fred Gradolph; vice-president, H. C. Spaulding; secretary, C. E. Stanger; treasurer, Seth Dixon.

After January 1 the Firestone Tire & Rubber Company, of Akron, will begin to push its new mechanically fastened pneumatic tire. The company, which has tripled its floor space the past year, will make a specialty of the pneumatic tire in addition to the solid rubber tires which it has been manufacturing on a large scale. The new tire will be manufactured under a patent originally taken out by H. A. Palmer, but the construction has been changed somewhat. The Firestone Company has increased its capital stock from $200,000 to $500,000 in order to secure more working capital.

The Torbensen Motor Car Company, of Bloomfield, N. J., has purchased the property at 610 Bloomfield avenue, and after alterations are completed to the present buildings, will occupy them in the manufacture of motors and gears for touring automobiles and trucks.

The Briscoe Manufacturing Company, of Detroit, Mich., makers of the well-known Briscoe honeycomb and flat tube radiators, has acquired the plant formerly occupied by the Wheeler Manufacturing Company, and which adjoins the Detroit factory of the Briscoe company. This acquisition gives the company 15,000 extra square feet of floor space and fills a long-felt want for more room in the plant.

Three new members have been enrolled in the Association of Licensed Automobile Manufacturers—the Matheson Motor Car Company, of Holyoke, Mass., the Walter Automobile Company, of New York and the De Dietrich Importing Company, of New York.

The Pontiac Motor Company, of Pontiac, Mich., has forwarded articles of incorporation to the secretary of state at Lansing. The capitalization is $25,000. Martin Halfpenny is the promotor, and among the stockholders are Pierre Buckley, J. E. McLintock and A. H. Burton, of Pontiac, and George E. Fisher, of Detroit. The company proposes to build a commercial car after a model by Mr. Halfpenny. The parts will be purchased outside the city and shipped there for assembling. The car will be equipped with the Halfpenny auxiliary spring, which has proved of great advantage on all cars to which it has been applied, it is said.

A meeting of the Flint, Mich., subscribers to the new Weston-Mott Company, to be organized in that city to succeed the Weston-Mott Company, of Utica, N. Y., which will locate there next summer and whose plant is now in course of construction, has been held for the purpose of making provision for a temporary board of directors, pending the organization of the new company under the laws of the state and the election of a permanent board of directors. J. D. Dort, C. M. Begole and J. J. Carton were chosen to act as a provisional board of directors. Charles S. Mott, president of the Weston-Mott Company, of Utica, was present.

J. Whitlock, a representative of the G & J Tire Company, of Indianapolis, is in Philadelphia looking up a good location for a branch store which is to be established about the first of the year.

The Standard Auto Company, of Detroit, Mich., agents for the Peerless and Packard cars, are temporarily located at 260 Jefferson avenue, pending the completion of a building now in course of erection on Woodward avenue. In one of our recent issues it was incorrectly stated that the Detroit Motor Car Company held the Detroit agencies for these two makes.

A part of New York city automobilists spent Saturday, December 9, in Bridgeport, as the guests of the Locomobile Company of America. John F. Plumer, Jr., New York manager of the Locomobile company, conducted the party to Bridgeport by private car over the N. Y., N. H. & H. R. R. On arriving at Bridgeport the party was taken to the Locomobile factory, where the day was spent in inspecting the plant.

The Joy Brothers' auto agency, of St. Paul, Minn., is preparing to ship a number of private automobiles to warmer climates for the winter. Some of the local enthusiasts will send their machines to Florida, while others will ship theirs to California.

The Peerless and Stevens-Duryea cars will have a much larger and more attractive home in Philadelphia next year. The Eastern Automobile Company, which handles those cars in the Quaker City and adjacent territory, has secured the building adjoining its present quarters and will have salesrooms and garage triple the size of the present ones.

Russell Huff, chief engineer of the Packard Motor Car Company, of Detroit, Mich., has gone to Europe to attend the Paris show, and, before returning to this country, will visit the leading European automobile centers.

The recently organized Babcock Electric Carriage Company, of Buffalo, N. Y., has taken over the business of the Buffalo Electric Carriage Company and has elected the following officers: President and general manager, F. A. Babcock; vice-president, F. L. Pabst; secretary and treasurer, E. R. Whitney.

The Dayton Motor Car Company, makers of the Stoddard-Dayton automobiles, announce their agencies in the principal cities as follows: New York, Stoddard-Dayton Agency, 1633 Broadway; Chicago, Ill., McDuffee Automobile Company; Philadelphia, Hamilton Automobile Company; Pittsburg, Central Automobile Company; Buffalo, N. Y., J. A. Cramer, 737 Main street; Boston, Randliff Motor Car Company, 24 Columbus avenue; St. Louis, Mo., Colonial Automobile Company, 3944 Olive street; Omaha, Neb., Deright Automobile Company, 1119 Farnam street; Cleveland, O., H. S. Moore, 160 Crawford Road; Toronto, Canada, Automobile and Supply Company, 24 Temperance street; California, H. W. Church, Hellman Building, Los Angeles; Minneapolis, Minn., Haynes Automobile Company, 220 South Sixth street; Denver, Colo., C. M. Wood; Indianapolis, Ind., Fisher Automobile Company, 330 North Illinois.

Police Commissioner Whelan, of Detroit, has placed two members of the mounted police squad in the downtown district of that city to capture reckless drivers.

THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, DECEMBER 21, 1905—CHICAGO No. 25

OPENING OF THE PARIS AUTOMOBILE SALON.

From Our Own Correspondents.

PARIS, Dec. 8.—In its general lines the eighth automobile salon opened to-day by President Loubet does not differ materially from its immediate predecessors. The same elegant Grand Palais in the Champs Elysées; the same industrial section in the Serres on the banks of the Seine, close by the main building; the same opening ceremony by the President of the Republic, converted to automobilism since last year's show; the same elegant crowd, and, in order that it may not be thought that this sameness has produced flatness, the same, or even more enthusiasm than ever.

Outside, on the Avenue des Champs Elysées, and on the Avenue Nicolas II. Venetian masts and floral decorations, with a searchlight and numerous electric lamps at night, add additional beauty to one of the most artistic portions of the most beautiful city in the world. Inside the Grand Palais, while the general arrangement is the same, there is an additional finish and elegance. What last year was pretty has this year become luxurious; stands that were considered excellent last year have this year received an additional artistic touch, which has transformed them into elegant salons. In a few cases last year's designs have been retained with a few modifications, but in most instances a complete change has been made. Probably the prettiest and most costly stands are those in wrought-iron work, and foremost among them is the Mercedes stand, under the central dome. Delaunay-Belleville, Clément, Richard-Brasier,

GENERAL INTERIOR VIEW OF THE EIGHTH ANNUAL PARIS AUTOMOBILE SALON, OPENED DECEMBER 8, 1905, BY PRESIDENT LOUBET.

VISITORS' CARS LINED UP ALONG SIDEWALK IN FRONT OF THE GRAND PALAIS AT OPENING OF PARIS SHOW.

Charron, Girardot and Voight have all got stands worked out in wrought iron with charming effect. The Darracq stand strikes one by its originality of conception, being the model of a Hindu temple; massive stone (apparently) columns support tremendous cross sections covered with figures dear to the Eastern mind, while a modern touch is given by white electric lights outlining the whole.

Foreign firms, although not so well provided for under the regulations as is the local industry, have secured some excellent conditions, the Itala stand in particular, being large, well placed, and an excellent artistic conception. The designs consist of a triumphal arch in pure renaissance, the column being of colored glass illuminated from the interior. The Fiat stand is no less imposing, and Florentia, another Italian firm constructing under French license, is also well placed. No American firm has repeated the experiment of the Pope interests last year. On the exact spot is now the Dolores Company, a French firm owned and financed by Americans, which now exposes for the first time. The stand is a light wood structure painted in red and green, with a decorative panel over the center arch representing an automobile driven by a gentleman with a typically American face coming through a landscape on which figure in outline the inevitable house, cow and child. Under the trio are exposed the new 10-horsepower, four-cylinder town vehicle with driver's seat on left-hand side, a 40-50-horsepower chassis—the lowest and highest power machines—as well as the same models fitted with different bodies.

Just behind the Dolores stand one is attracted by the well-known word Cadillac. It comes as a surprise, for not very many days ago the promoters of the salon did not know that this firm would be among their exhibitors. The stand, which is rather badly placed, one half of it being in the main building and the other half under the cupola, so that from whatever side you approach it only one car can be seen at a time, was sublet to the Cadillac people at the last moment. Two types are exposed, a Model E light runabout with two individual seats and 9-horsepower engine, and a Model F touring car with side-entrance tonneau body, giving roomy accommodations for four people. This is the first appearance of the Cadillac people here, though it was known to the initiated that for some time they have been "spying out the land," and their car may now be expected on the French market as a serious competitor.

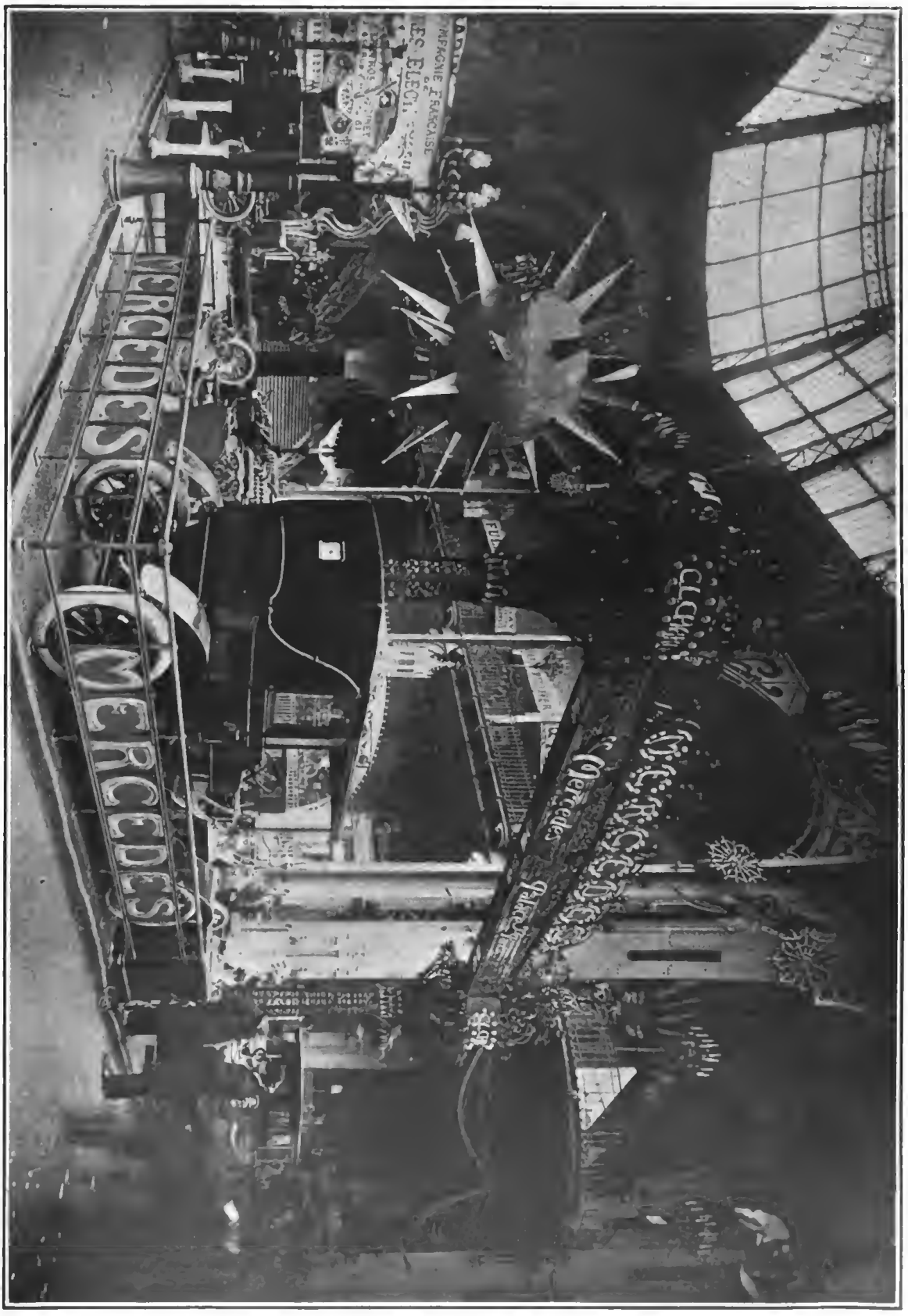
In the central avenue of the show is the Oldsmobile stand, in close proximity to the big displays of Darracq, Decauville and Itala. Two elegant-looking chassis, painted in dull silver and light blue, the one a two-cylinder, 16-20 horsepower, and the other a 20 horsepower, four cylinder, are shown, as well as a 7-horsepower runabout and a similar chassis fitted with body. In a cabinet on the stand a fine collection of trophies, some twenty in number, won by Oldsmobile in speed and touring contest, are exposed. Mr. Huss, who was instrumental in securing much of this silverware, is, if not exactly on exhibition, at least on hand for the numerous visitors who gather around the Oldsmobile exhibit. The stand decorations, modest in comparison with the lavish decorations in the immediate neighborhood, consist of light, double columns bearing the arms of the company, the name Oldsmobile in red luminous letters being supported by the columns, and crowning all is the outline of a runabout, which, together with the other portions of the stand, are picked out in white electric lights.

On the opposite side of the nave the Electric Vehicle Company has its show quarters, where, beneath the sign "Columbia" are to be found four American cars. They are a four-cylinder, 40-horsepower gasoline car with a landaulet body by a French maker, an electric landaulet, a Mark 61 victoria, and an electric surrey.

There is no waste space on the Columbia stand, for space is now a rare and costly commodity at the Paris Salon, and, as a consequence, there has been no room to indulge in decorative schemes.

Still another American stand is that of the American Locomotive Company, where, under a pretty triumphant arch in white and blue, tastefully decorated with luminous bands of flowers, is shown a single chassis.

NIGHT VIEW OF FACADE OF GRAND PALAIS IN PARIS SHOWING INCANDESCENT ILLUMINATION DURING THE AUTO SHOW.



MERCEDES STAND UNDER CENTRAL DOME AT PARIS SHOW.—ONE OF THE MOST HANDSOME AND COSTLY EXAMPLES OF THE WROUGHT IRON STYLE OF DECORATION.

This is a 40-horsepower machine, built in America under Berliet license; the original factory drawings and patterns are used and followed in their entirety, and the model is in every respect similar to the one constructed in France. There are four sizes, 24, 40 and 60 horsepower, and the main features are pressed steel frame, four cylinders cast in pairs, drive by countershaft and side chains, two band brakes on the countershaft and internal expanding brakes on the driving wheels.

In the rush and bustle of the opening day it is impossible to get a very clear idea of what the Salon really contains. As at the theatre, the stage shifters slip out at one end while the curtain is being rung up, and from the moment the doors are flung open the crowd presses in so densely that it is impossible to obtain more than a very general knowledge of what is to be seen. One tendency that could not be overlooked is the great increase in the number of runabouts. Whereas last year it was almost exclusively a big car show, this year there are quite a number of small automobiles of from 7 to 10 horsepower, some of them constructed by well-known firms, others by small firms just entering into the business.

The Peugeot 7-8-horsepower runabout attracts more attention than most of the others, probably on account of the reputation of the firm as motorcycle constructors. For $720 to $760—the price has not yet been definitely fixed—a thoroughly reliable little runabout is supplied, constructed entirely on the lines of large touring cars. Forward under the bonnet is a single-cylinder motor; the car has pressed steel frame, drive through countershaft to side chains, three speeds and reverse, a comfortable body with two individual seats, the whole finished off in rich, dark colors. There is an Italian single-cylinder, air-cooled voiturette with single chain drive to countershaft and belt drive to rear wheels, with accommodation for two people, for as low a sum as $420. There is what is known as the "Passe-Partout," with a six or eight horsepower De Dion or Bucket motor, for $540; and from this sum up to $1,000 there are quite a number of single-cylinder runabouts constructed on correct lines, and having every guarantee of being reliable little cars.

OLDSMOBILE STAND AT PARIS SHOW.—NEW FOUR-CYLINDER CAR IN FOREGROUND.

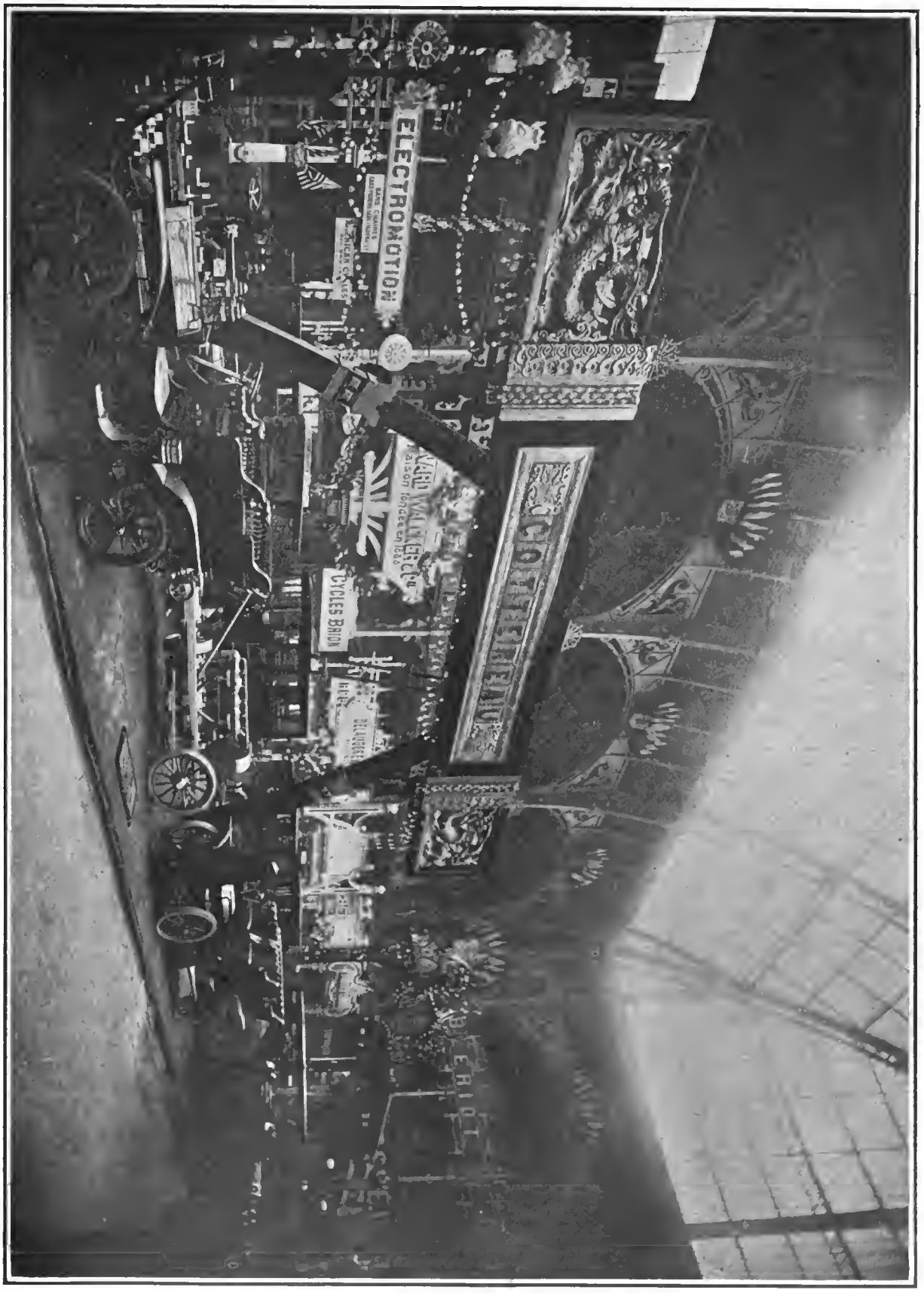
Famous racing machines are rather numerous at the show. On the Richard-Brasier stand is the famous No. 1 with which Théry captured the Gordon Bennett Cup in Auvergne. The trophy occupies the driver's seat, being laid on a hastily constructed table. At the Darracq stand is the famous car with which Hémery won victory in America. It still carries the number 18 on the radiator and appears none the worse for catching fire. Except for its tires, one would not believe that it had run more than two or three miles. At the Itala stand is the big white car, newly painted, nickeled and polished, but still bearing its original tires, with which Raggio won the Florio Cup last September. The much-valued trophy stands on a pedestal, and the Italy Cup and the Count de Salemi Cup keep it company. Not being able to show the original, the De Diétrich people expose a model of the Pyrenees Cup, won by Sorel on one of their touring cars.

The number of exhibits totals 1,052, in all sections of the show. Of these 985 are French, 21 English, 18 Italian, 10 German, 10 Belgian and 8 American. There are, in addition, 30 cars entered for the town vehicles competition and exposed in one section of the Serres. Twenty-eight of the competitors are French and two American. In the art section there are 83 paintings relating to automobilism, 20 sculptures and 309 etchings or drawings. New inventions total 57. The figures represent the number of stands, and not the number of firms. In some cases, as, for instance, an American stand in the industrial section, seven or eight different firms are represented by one agent.

Foreign visitors to the show are as numerous as in previous years. Americans appear to predominate over English, who have, indeed, not much reason to cross the Channel, owing to the priority of their own exhibition. Many of the visitors from the States will not arrive until the beginning of next week. Amongst others, Mr. J. Tracy was noticed this morning attentively studying the various exhibits immediately after the opening of the show. Italians have come in fairly large numbers, and Germans appear to be studying the exhibition closely.

The industrial section of the automobile show is exposed in the Serres, as last year, but, owing to its incomplete state, but a superficial idea of its contents could be obtained. Even at a late hour this afternoon

STAND OF PANHARD & LEVASSOR, SHOWING CHASSIS AND CAR WITH ENCLOSED BODY.



VIEW OF A SECTION OF THE PARIS AUTOMOBILE SALON, SHOWING ELABORATELY DECORATED COTTEREAU STAND IN THE FOREGROUND.

the public was not admitted to more than a small portion of this section. It is in this part of the show that the greatest increase is noticeable. A large amount of space has been gained, but every inch of it will be occupied. Many of the stands are small factories in their completeness. A splendid selection of machine tools is shown by Fenwick Bros., who represent principally Brown & Sharp Manufacturing Co., Providence, R. I., and the Pratt & Whitney Co., Hartford, Conn. Both of these concerns are showing a large number of machines and tools. There is also on exhibition a machine from each of the following American firms: W. F. and John Barnes Co., Rockford, Ill.; Fosdick Machine Tool Co., Cincinnati; Builders' Iron Foundry, Providence, R. I.; Gleason Works, Rochester, N. Y.; Heald Machine Co., Worcester, Mass.; Whitcomb Mfg. Co., Yale & Towne Mfg. Co., Bullard Machine Tool Co., Bridgeport; Excelsior Needle Co.; Herron & Burry Mfg. Co., Cleveland Twist Drill Co., Cleveland, O.; American Emery Wheel Works, Providence, R. I.; Diamond Machine Co., Providence, R. I. Among other machines which will be in operation in a few days are a full line of new model lathes, spindle drills, tool makers' tables, 14-inch lathes, vertical milling machines, cylinder grinding machines, new model gear planer and an automatic grinding machine for grinding milling machine cutters.

Apart from the show proper are quite a number of auxiliary events, many of them of the greatest importance. During the course of the Salon there will be a competition for comfort and convenient arrangement in automobile boats; an exhibition of new inventions dealing with automobiles and cycles; a competition for photographs dealing with automobilism; an art exhibition comprising paintings, sculpture and engravings, and a competition for the most artistic stands. There will also be held, beginning next Monday, the Motorcycle Club's congress; a touring congress; a competition for the automatic starting of motors; an international congress to fix dates of important automobile events for 1906, and a meeting of foreign delegates with the committee of the Automobile Club of France to decide on a program for next year.

Salon Seen Through Technical Eyes.

PARIS, Dec. 8.—After a late return from the Grand Palais, full of the daze of the thousands of electric lights and of the hum of the densest opening day crowd that can be imagined, the unfortunate technical man, fresh from the battle in which he had to fight his way from chassis to chassis, has to put down whatever impressions he brings back and what he judges the trend of things to be. He feels very much like asking for a night's rest and a week's leave to unravel the general confusion of his ideas, but mail trains will not wait and transatlantic liners also start on schedule time. So to work.

A few general features are, however, so very prominently in favor with the majority of the manufacturers of the machines shown that they don't need much effort to express themselves in that weary mind.

First of all should be noted that unmistakable mark of a healthy and scientific development of the automobile designer's art: the tendency of all makers, whatever their starting point and whatever their preconceived and hard defended ideas may have been, to come through various channels to a single design, which in a few years will certainly represent the best practical and most salable automobile. Of course this must not be taken to mean that all automobiles made five years from now will be exact reproductions one of the other, whoever their maker may be, but it should be understood that as we advance we come nearer to the exact solution of all the controversies that have divided the automobile world for years, and that, the correct principle being found, every one will apply that one principle, although there is an infinite number of ways of applying it, the exact value of which will be determined by a number of outside circumstances which will be different in every case.

This evident tendency toward unification in the design of the main elements of the modern automobile has evidently been noticeable for some time, but never as much as this year, and for that reason it should not be considered as a desire of the generality of designers to imitate with more or less seriality the work of some especially successful engineer. If such was the case, it would merely be a craze, such as that through which we went some three years ago, at which time so many machines were more or less reproductions of the then wonderful design of the Mercedes simplex.

PEUGEOT GASOLINE OMNIBUS ENGAGED IN CARRYING PASSENGERS TO THE PARIS SALON.

PRESIDENT LOUBET, OF FRANCE, ARRIVING BY AUTOMOBILE LANDAULET TO OFFICIALLY OPEN THE PARIS AUTOMOBILE SHOW.

Of the different points in construction that suggested these thoughts to the writer, a number have now come to what can be considered an almost universal use with French and other good European makers, while some others are simply showing year after year a steady gain in popularity, which undoubtedly means that when the absolutely correct way of applying them will be found they will in turn become universal. All these points will be considered in detail in a series of studies that will follow and that will be devoted to each of them in particular, but for the time being a general and brief idea of the principal lines of interest in the special direction considered should be given.

Amongst the points in car construction that can be considered as practically universal in the present show, the two prominent ones are the constant mixture carbureter and the mechanically operated inlet valve. The former is to be found on all stock cars, sometimes in a most elaborate and complicated form, and some other times in the simpler fitting of a very light sort of automatic extra air inlet valve conveniently situated between the carbureter jet and the motor. In one or two instances, where extreme simplicity is the aim of the designer, all moving parts have been suppressed, automaticity being simply obtained by special shapes and dispositions of the gas ducts in carbureter and in special forms of jets.

The mechanical valve is to be found almost everywhere. The only really noteworthy instances of automatic valve design are the De Dion, who always stood by the side of that system, and the new Renault four-cylinder 10-horsepower town car. Yet it should be noted that with the Renault machine it is simply a matter of reduced cost and slightly increased simplicity, while in the De Dion case it is a sign of the times to see that the firm that almost swore never to use the mechanical valve timidly shows a large railroad car gasoline engine in a back corner of the annex which follows every line of the De Dion design in absolutely every respect except for the four little push-rods and valves that look a great deal like a blushing acknowledgment of mechanical valve qualities.

A point to be noted in mechanical valve construction, however, is the almost general discarding of the overhead valves with their long push-rods and horizontal tappets. This being a most interesting object lesson in the line of wear in articulations, after the boom which this type of inlet valve appeared to enjoy at last year's show. Theoretically the overhead valve direct in the center of the head should make a superior engine, but in practice, the French designers assert, the wear of the operating mechanism causes an objectionable clicking and alterations in the timing of the valve. For these reasons chiefly, there is a reversion to the direct acting mechanism.

A growing tendency exemplified in De Dietrich and Richard-Brazier practice, following the step taken long ago by Renault, is to place both valves on the same side of the engine over a single camshaft. This practice leads to some display of skill in the design of a correctly made system of pipes, while it has the advantage of reducing wall surface inside the cylinder in proportion to cylinder head capacity. The De Dion engine with mechanical valves, already mentioned, displays a new and smart idea in that direction and will be described in detail later.

A new line opened to the inventive genius of automobile makers, by the recent announcement of a "starting from the seat" competition, seems to have very well caught on, as several firms, and not of the least, present apparatus for this purpose which appear thoroughly practical and worthy of a more lengthy study than the frame of this article will permit.

Leaving engine details, we find in the construction of the car proper great advances in spring and shock absorber designs. All sorts of springs likely to increase the comfort of the occupants of the car are to be found from the full C springs on the C. G. V. to the simpler but also greatly improved forms. Shock absorbers are, to say the least, almost as numerous as carbureters; that means not a few, some of them embodying really clever and practical features, while some others unexpectedly seem to be fit to do just the reverse of what they are meant for.

The live axle system is not making much fuss, but it steadily ousts the side chain, which, however, still stands supreme on the really high-powered machines. No startling changes are made in its design, but De Dion, with the curved outer solid carrying axle, is finding wise imitators, while it is now standard practice to carry the wheels on the axle tubes, leaving the driving torsional effort alone to be taken care

of by the internal shafts, such as has existed for some two years in the Decauville machines.

The double separate sliding sets change speed gears are increasing in favor, their advantage being to permit of lighter and stronger change gear systems. As a rule the tendency is to reduce the proportions of the gear box, genuine marvels being produced in that direction. The use of positive locks to hold all the gears in the proper position in the gear box, whatever set may be in use, is becoming general. In not a few instances a special lock has to be put out of action either by hand or foot in order to put the reverse in use, the idea being to prevent the accidental throwing in of the reverse when changing gears.

Pawl-ratchet sprags are also gaining in favor, crutches being absolutely absent except on some commercial vehicles. In some cases a special system automatically puts the sprags out of action when the reverse is thrown in mesh.

Little efforts are shown in the direction of kerosene and alcohol motors, but on the other hand the commercial vehicle business seems to have received a huge impetus resulting from the competition organized by the club during last summer and also as a result of the various large orders given by a number of French and foreign public transportation companies. Special care will be taken of this section of the show in the studies to follow, so it is not necessary to deal with it further at present.

In the motor boat section few novelties are shown, the racing craze seeming to have seen its best days for some time to come, while the cruisers show little if any difference from those exhibited last year. The machinery section shows an increased number of special automobile part manufacturing machines, and a few interesting novelties, especially one that will be fully considered in the line of metal welding and general sheet metal work.

To sum up, the eighth salon, which is one of the finest sights the show buildings in Paris ever sheltered, is fully as much the meeting place of the world's best and most modern engineering developments as it was to-day the meeting place of France's best society and of many of the world's most prominent cosmopolitans.

GAS ENGINES IN TRAINING SCHOOL.

MUSKEGON, Mich., Dec. 16.—Gasoline engines for bicycles and boats are at present occupying the attention of the pupils at the Hackley Manual Training School and preparations are being made for the installation of machinery made by the pupils next spring. Six sets of castings for 2 1-2-horsepower gas engines have been purchased by the Board of Education. These castings are intended for either marine or stationary engines. If, at the end of the year, the boys wish to own the engines they may do so by paying for the castings.

American Cars in Favor in China.

IF there is one country where the automobilist would hardly expect to find the motor car entering into an extended use it is China. That the Celestial Empire, immense in its proportions and very unfriendly toward the adoption or use of any of the mechanisms of higher civilization, should not only have accepted the motor car as far back as 1902 but is even now encouraging its use, is a very remarkable fact. It is impossible to learn how many automobiles are being used in China at the present time, but the number is placed at considerably more than one hundred. It is especially pleasing to note that the American-made car is giving the best service, although outnumbered by the cars of European manufacture.

The use of automobiles in China is, as would naturally be expected, confined largely to the many foreigners engaged in business there and living in the big cities along the coast. In the past year, however, a number of wealthy Chinese have purchased cars and are now enthusiastic automobilists. In consequence, the wealthier class of natives is beginning to look upon this mode of travel with special favor, and therein lies the promise for an extensive field for the automobile industry in China. Shanghai is the automobile centre of China and has now three garages with repair departments. It is also the home of the Automobile Club of China, which was organized last May and now has twenty-two members enrolled.

RUNABOUTS MOST IN DEMAND.

The first automobiles imported into China were six steam cars of American manufacture in 1900, but none of these was sold. Three Oldsmobile runabouts were imported in 1902 and found immediate purchasers, and the next year two De Dion runabouts were brought in. The number of cars imported in 1904 and 1905 showed a remarkable increase. The present demand is for cars of the runabout type, because the narrowness of the streets in the cities of China make the operation of large cars very difficult, if not dangerous. All of the American cars imported into China have been either runabouts or small touring cars, and this accounts for the preference shown them over the large cars of European manufacture.

The roads outside of the cities in China are very favorable to the use of the automobile, and the only drawback for town use is the narrowness of the streets. All of the cities and towns are connected by magnificent macadam highways, which are kept in excellent condition, and, as the railroad facilities are very poor, most of the travel is done over the roads. So suitable are the roads of China to the use of the automobile, and so necessary is the adoption of improved transportation facilities, that the extended use of the motor car in that country is certain in the near future.

In his report to the Department of Commerce of the United States, Special Agent Burrill, who is now studying the commercial conditions in China, says, in part: "China presents a steadily increasing market for automobiles, and the sale of machines of American manufacture has kept pace with the demand. While the purchase of cars to this time has been confined almost exclusively to foreign residents, the wealthier class of Chinese now regard this mode of travel with special favor. Chinese drivers of automobiles are the rule rather than the exception here, and this familiarity of the natives with the running of the cars, in addition to their speed, comfort and utility, is assisting in influencing the Chinese in their favor. The roads in and around Shanghai, and, in fact, throughout most of China, are macadamized and kept in excellent condition by the municipal authorities, money is abundant, and conditions are generally favorable to the extension of the automobile business in China."

SUGGESTIONS FOR EXPORTERS.

He makes several suggestions, which we publish for the benefit of the trade:

"Manufacturers should give prompt attention to filling and shipping orders. Unnecessary delays frequently occur which furnish additional cause for criticism of American carelessness and indifference to the demands of the export trade.

"Any misrepresentation as to the time of shipment should be scrupulously avoided. Manufacturers should forward the machine on the date promised, as any excuse, although it may be fully warranted by conditions, will be regarded here with suspicion. This is the unfortunate, though unavoidable, result of previous experiences when the shipment of other commodities has been delayed beyond all reason.

"Close attention should be paid to the details of the shipment. No car should leave the United States unless its equipment is complete. This caution becomes all the more important, because several instances are cited where a machine has arrived in Shanghai and when unpacked discovery was made that the starting handle, or some other essential part, had been forgotten. This kind of carelessness occasions a long, unnecessary delay and natural irritation on the part of the purchaser.

"Freight rates on automobiles are high, both by San Francisco and the Suez Canal, and while it may be difficult to procure any reduction because of the comparatively limited number exported to the Orient, it is suggested that some action be taken, in the interest of the trade here, looking to cheaper transportation."

The freight and insurance rates on a car laid down in Shanghai amount to about $50 in gold. A customs duty of five per cent. on the invoice valuation of the car, including the freight and insurance charges, is collected.

League Danger Signs.

More than 300 accidents to automobile tourists have been reported in the United States and Canada during 1905, it is said, many of them resulting fatally. It cannot be said that these accidents were wholly due to rapid speed or reckless driving, for some of the most serious ones happened to automobilists who are known to be prudent and careful in the management of their vehicles. Most of them could have been avoided by a better knowledge of the danger points, or by some warning by which the tourist could have been advised of the proximate peril. The truth is that in many parts of the country, and especially in those sections which are most picturesque and attractive to the tourist, the highways are too narrow and winding and are often skirted by deep, unguarded ditches and dangerous gullies and crossed by railroad tracks at points where the tourist would have little reason to anticipate them.

To lessen these perils as much as possible the American Motor League has called upon its consuls, members and proprietors of official stations, in all the important states where touring is most popular, to take up the work of erecting danger signs and guide boards by which the tourist may be forewarned and his course directed to the avoidance of these pitfalls. Many of these danger signs have already been put up. The Pittsburg Board of Consuls of the A. M. L. has been particularly active in western Pennsylvania. The league sends out stencils from which these signs can be easily made by a man of ordinary skill, and in some cases the completed signs are sent out ready to be put up.

Blanks are being sent to automobilists in several states with letters requesting information as to points where these signs should be erected, and a contract has been made with a firm in central New York for a large number of signs, which will be put in place during the next few months. It is believed that before the end of 1906 more than 3,000 of these signs will be placed in different parts of the United States. Full information will be sent to any person addressing American Motor League, Vanderbilt Building, New York.

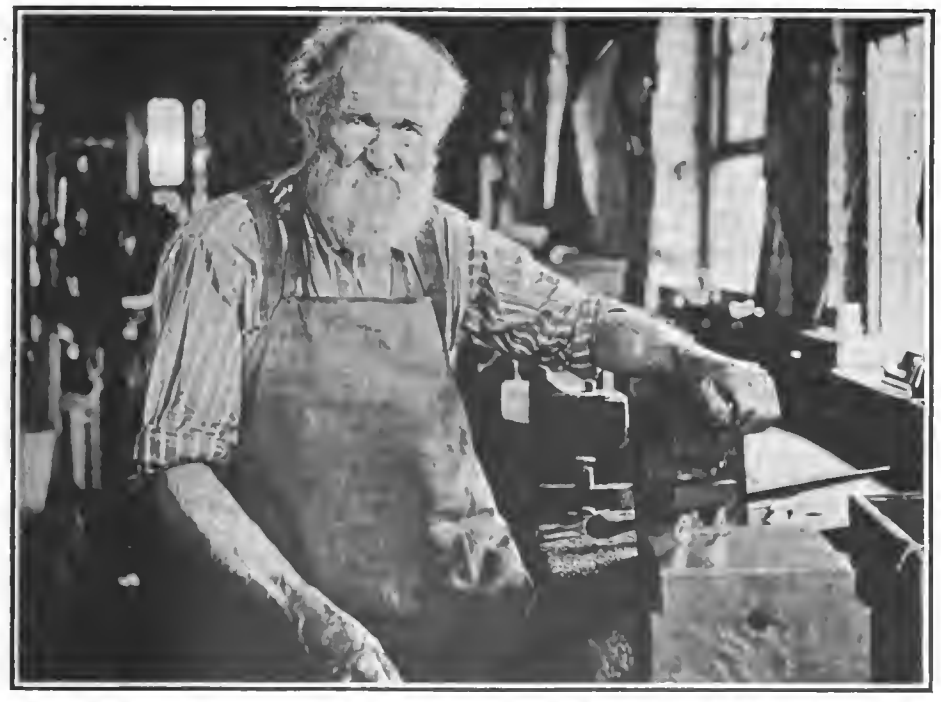
AN ALLEGHENY COUNTY ROAD SCENE SHOWING DANGER SIGN AT TOP OF HILL.

"DADDY" BARNES, VETERAN.

At four-score years "Daddy" Barnes, employed at the Pope Motor Car Company's factory in Indianapolis, asserts that he is the oldest mechanic employed in the automobile business and declares that he is not nearly ready to quit active work. Although his life has been one of hard toil, time has dealt kindly with him and his form is still robust, his hand steady and his blue eyes keen.

Among all of the 600 employees of the company, because of his bright, philosophic mind and ever-ready kind words to those about him, he is affectionately known as "Daddy," and whatever else his name may be, it has been lost in the more familiar cognomen.

The tools he uses daily at his bench were made by himself, some of them as much as half a century ago. The brace was made fifty-five years ago, the breast drill forty-nine years and the hack saw an even half century. He has been associated with the manufacture of bicycles and automobiles since their inception and sixteen years ago made the patterns for the first bicycle built by the Indiana Bicycle Company. He has been a close observer of the development of the automobile since the first Waverley electric was built.



"DADDY" BARNES, SAID TO BE OLDEST MACHINIST IN THE AUTOMOBILE BUSINESS, EMPLOYED IN WAVERLEY PLANT OF POPE MOTOR CAR CO.

Two motorists were driving down College street when, in trying to adjust some misunderstanding, the lie was passed and the fight was on. The steering apparatus of the machine, which was a Cadillac, was turned loose and down the street they went, locked in each other's embrace. One would hear an occasional "cuss" word and see a swing of the good right arm of each combatant getting in a lick on the other's anatomy. What would have been the result is hard to imagine, but fortunately as the scrappy cargo passed the engine house one of the firemen ran out and stopped the automobile, when the combatants were separated. No arrests were made, and the damage done was a discoloration of the optic of one of the combatants and a few sore ribs for the other.—Nashville *Banner*.

Crossing the Great American Desert.

NEEDLES, Calif., Dec. 11.—The *Mountaineer* has left the shores of the Pacific far behind and is now making for New York as fast as gasoline can carry her; delayed here and there by a river, a desert or a snow-capped mountain, but always regaining lost time on every fair stretch of road.

From earliest boyhood, we have read and heard tales of the Great American Desert, of Death Valley, of alkali waters and sandy wastes that were strewn with the bones of man and animal. I have been told that it was utterly impossible to take an automobile across these sandy wastes and have noted that in all transcontinental touring to date the machines have veered far to the north and crossed the heights of the Sierra Nevadas rather than brave the level sandy districts of Western California, Arizona and New Mexico. Therefore, it is not surprising that we left Los Angeles with some misgivings as to the success of our undertaking, and although I made light of all stories concerning the impossibility of desert automobiling, I must confess that I had misgivings such as only an automobile driver who has struck sand once or twice before can have. While it may be a little early to boast, we are glad that we have already crossed the worst stretches of the desert, at the rate of eighty miles a day.

Facing a Sand Storm.

When we arrived at Daggett the wind had begun to rise and by morning it was blowing a gale. Facing such a wind is bad enough on the ordinary dusty road, but on the desert where there is nothing but light shifting sand it is worse. The gale, carrying clouds of sand, bore down upon us time and again until at midday it was almost as dark as night and the fine sand blew into our eyes, creeping under and around the edges of our goggles until we couldn't see. Running part of the distance on low speed, but fully three-quarters of the way on the high, our chain creaking and the engine straining to its utmost capacity as the wheels were forced around in deep soft sand, we steadily forged ahead, knowing that every mile traversed brought us nearer to the end of the sand.

Stopped by the Wind.

At one time the wind blew so hard that it brought the car to a standstill and the sand stung our faces like needles. Fassett rode by my side with both arms across his face, while Vaughan, a Los Angeles autoist, who has volunteered his services as a guide through this state and Arizona, rode in the tonneau, his face protected by the canvas covering. I steered the car with my left hand and tried to protect my face with my right arm, but despite all efforts the sand and small pebbles pelted me almost unbearably. Mile after mile we covered in this way, nobody saying a word, while the sand storm raged with increased violence. The car fairly ate up gasoline, but luckily gasoline can be secured at every little railroad station along the lines of the Santa Fé where there is a section house and a small store.

While traveling the Cajon pass, some seventy miles out of Los Angeles, the *Mountaineer* turned over for the first time. It was at a sandy curve and the wheels, caught in the deep sand, refused to bring the car around. It went over slowly and all managed to jump or get thrown out and crawled out from under before the car fell over. It tipped to the right, and not content with turning over once, rolled over again and again until it finally landed on its side at the bottom of the embankment.

Expecting to find everything broken, the crew was agreeably surprised to find the damage very slight. Broken mud guards, a broken spring leaf, badly bent searchlight and side lamps and a slightly distorted steering wheel were the sum of the damages done, and in fifteen minutes the machine was again eating up the road toward Daggett, steering a little wild, but keeping the road and making good time through sand or lava.

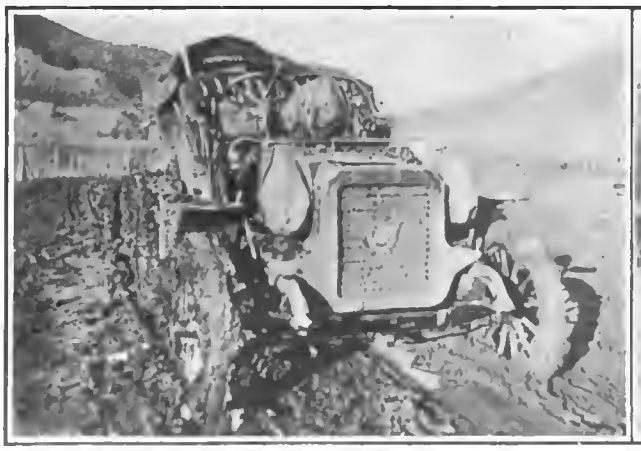
Crossing the Colorado.

We expected to find a regular ferry across the Colorado river at Needles, but we didn't. It was hours after we had reached the banks of the river before we were able to make the Indians who owned boats in that vicinity understand that we wanted a boat large enough to carry the machine across. Finally, about 4 o'clock in the afternoon, a very large rowboat, used for hauling wood, was secured, and after some bargaining we induced a man to row the automobile across for $6, but he would not be held responsible if the boat refused to carry the automobile or should upset in the rapids. It was our only chance and we accepted the conditions, not, however, without some serious misgivings. The boat was backed up to the bank and planks were laid down a 50 per cent. grade. The automobile was then carefullly lowered by its cable to the boat and as carefully pushed toward the middle of the frail craft. The water was crossed successfully and by laying skids up the opposite bank and planting a dead-man, we hauled the car up by windlass until it rested in the soft white sands on the further shore. Then we camped for the night.

First Automobile Ever Seen.

The Reo is the first automobile that has ever run any further east than Daggett on this route, and at every town at which we stopped the inhabitants, usually consisting of the telegraph operator and the section boss and their immediate families, crowded around and plied us with questions. At Daggett they told us of this and that machine that had tried to cross the desert, but had always been brought back, usually on a freight car. The section crews, working on the tracks of the Santa Fé, invariably stopped work when the *Mountaineer* hove in sight and refused to touch pick or shovel until we were far in the opposite direction. Several of the section bosses took off their hats as we sped by. One man said he was proud to doff his hat to an automobile that could travel through that sand, as he never believed it possible. Everywhere we were asked our names, the name and power of our car and requested to give our cards, as they wanted to always remember the first automobile to cross the desert.

Percy F. Megargel.



THE "MOUNTAINEER" ENCOUNTERS AN ALKALI MUD HOLE IN THE CALIFORNIA DESERT.

MEETING OF MEGARGEL AND CHADEAYNE, MOTORCYCLE TRANSCONTINENTALIST, IN LOS ANGELES.

Motorcycle Transcontinental Record Trip.

BUFFALO, Dec. 17.—William C. Chadeayne, the young man who established a new motorcycle record between New York and San Francisco, returned to his home here a few days ago, having come from the west by railroad. Chadeayne left New York City on September 13, and arrived in San Francisco on October 30, having made the trip in 47 1-2 days, just one day less than the time made by George A. Weyman in his trip between the same points, but going in the opposite direction.

Chadeayne is secretary and treasurer of the Thomas Auto Bi Company of this city, and rode one of that company's 3-horsepower motorcycles on his trip. He said he did not make the trip for the purpose of advertising his machine or expecting to derive any profit, but simply to demonstrate the practicability of motorcycles in general. Upon his arrival home he expressed the opinion that if he had made the trip at a better season of the year he could have done it in much less time.

Mr. Chadeayne had many interesting experiences on his trip and not the least of his troubles was obtaining oil and fuel for his motor.

"When I left New York," he said, "I started to keep an account of the amount of oil and fuel I used and the cost, but it soon became such a burden that I had to quit. Why, I paid from fifteen cents to a dollar a gallon for gasoline, depending on where I was when I needed it. I guess I used in the neighborhood of a barrel of gasoline and from fifteen to twenty quarts of oil. I used everything in lubricating oil from mowing-machine oil to the best stuff on the market. One day I went forty miles with my tank full of mowing-machine oil. I rode for six or seven hundred miles over railroad ties. This wasn't so bad as a general thing, but it certainly shook me up and was about all the machine would stand."

"From Ogden, Utah, to San Francisco proved the most trying part of my trip," said Chadeayne. "I had only six days in which to beat the record and I used every bit of energy in me to get through ahead of time, riding when I could and walking when I could not ride, sleeping only when sheer exhaustion compelled it.

"The day after leaving Ogden I had a narrow escape from being killed. I was bumping along the railroad tracks when suddenly I heard the noise of a train and turned to see it almost upon me. I had just time to turn my machine sharply to the right, and I was thrown with it into a ditch, the train passing by with a roar. I expected to find my machine a wreck, but a bent crank seemed to be the extent of the damage.

"I had a fall of about thirty feet over a steep embankment the day before I got to Ogden. I was going down a pretty steep grade in what they call Weaver canyon. There was a sharp turn at the bottom of the hill. I should have made it all right, but I struck a snow drift and was sent flying over the bank. I don't know how long I was out, but when I woke up two men were carrying me to a ranch house. There I succeeded in fixing my machine up so that I could continue that night, reaching Ogden at 5 o'clock on the following morning.

W. C. CHADEAYNE, HOLDER TRANSCONTINENTAL MOTORCYCLE RECORD, AND HIS THOMAS "AUTO-BI"—Photographed Ten Minutes After Arrival in San Francisco on October 30, 1905.

"At Potter, Wyoming, I saw a gang of men about to lynch a man who had started a prairie fire—a serious offense out West. The sheriff and his men arrived just in time to save the man. When I finally arrived in San Francisco it took me about three days to stop riding. I stayed in my room, slept almost all the time, generally dreaming about things I had done on the trip and imagining I was still going. The boys in 'Frisco certainly gave me a great time. My money wasn't good there and there wasn't anything too good for me."

When asked if he would advise others to make the trip, Mr. Chadeayne said: "If two fellows, with plenty of money and time, would start earlier in the season, without going for a record, it would make an interesting trip. Of course, there are things which would make it hard at any time, because a rider would have to encounter the prairies and bad roads no matter what the climatic conditions might be. If I were to do it over again I could do it better because my experience has taught me the roads and I could cut out many of the bad places. But going for a record takes off the fascination of the trip, anyway."

Chadeayne's machine was in much better condition after completing the trip than would have been expected, considering the many spills and accidents he experienced. The machine is of the ordinary late model of the Thomas Company, with the exception that the gasoline and oil tanks are much larger, in order that it might go farther without replenishing the fuel. Chadeayne used a racing gear throughout the trip. The accompanying picture of him was taken a few minutes after his arrival in San Francisco.

AUTO CORN POPPERS NEXT.

ROCHELLE, ILL., Dec. 16.—An automobile corn-popping outfit started away from Kings, Ogle county, recently. Kings is a great center for the production of popcorn, and a man with an inventive turn of mind equipped an auto with a full popping outfit and started south with it. When last heard from he was still making for Dixie.

It is not improbable that manufacturers will produce a combined auto and corn-popping machine in the near future. In fact, the two are very close together in Peoria, where the Bartholomew Company, which builds the Glide, is also manufacturer of many kinds of peanut roasters and corn poppers. Some of them are as big as a traction engine. There is an immense demand for them, and it is only a question of time when the two kinds of machines will be combined, although no announcement of this nature has been made by the Peoria factory.

Since the enactment of the present Indiana automobile law, Indianapolis owners must now have two licenses, one a state registration at $1, which does not have to be renewed, and the other an annual city license, costing $3. However, Indianapolis motorists are expecting much from Mayor-Elect Bookwalter, who will take office January 1. Mr. Bookwalter is prominently identified with the automobile industry of the city and it is believed that he will recommend that the city license be removed.

Proposed Auto Speedway on French Coast.

PARIS, Dec. 6.—France, like England, is desirous of possessing an important automobile speedway, where, unrestricted by police regulations, free from all danger of straying animals, sleepy drivers of teams, or nervous old women, the automobilist can travel at any speed he likes in perfect safety.

Unlike the British project, which seeks to link London with a distant busy town, the proposed French speedway is far away in the southwest corner of the land, over a virgin soil, where game abounds; through forest, moor and tableland, with vistas of the rolling Atlantic away to the west, and where fresh salt breezes will dissipate all exhaust gases and invigorate the driver of a car.

Between Biarritz on the Spanish frontier and Arcachon on the west coast of France, is a distance of about thirty-five miles of perfect beach. Three or four miles from the beach, and almost parallel with the Atlantic coast, are a series of the largest lakes in France—Cazaux, Biscasosse, Aureilhan, Léon, Soustons, Hossegor—six magnificent lakes, well stocked with fish, abounding in game, and surrounded by luxurious vegetation.

By uniting the two towns by means of a special road reserved to automobiles and cycles, the whole of this virgin soil, probably the richest in France, if not in all Europe, will be opened up to a wealthy section of society anxious to avail itself of all the advantages of nature. The realization of the project is rendered more easy by the almost total absence of transverse roads, and its proximity to the ocean puts it out of the way of forest traffic, which is almost entirely to the east of the proposed boulevard. There will be no grade crossings, for the two or three roads will cross the speedway either by overhead bridges or by tunnels under the road.

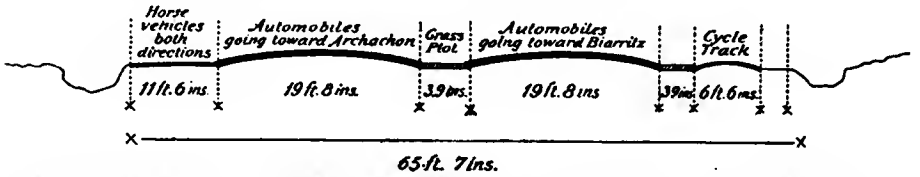
It is proposed to construct three main tracks: A cycle track, 78 inches wide, reserved for motorcycle and bicycle traveling in either direction; a drive, 19 feet 8 inches wide, reserved for automobiles going towards Biarritz, and a drive of equal width for automobiles going in the direction of Arcachon.

A fourth course, 11 1-2 feet wide, will also be made for horse-drawn vehicles going in both directions. Between the automobile and the cycle tracks will be left a strip of land 39 inches wide to diminish the danger of accidents from the unlimited speeds which will be permitted.

About every six miles will be established stations, all united by telephone, at each of which will be placed a guardian, and where tools as well as a car for touring purposes will be kept in case of emergency. In addition, telephone boxes will be placed at frequent intervals along the speedway, communicating with the repair stations.

A toll will be exacted from all persons using the speedway, the fund so obtained to be used for paying off the capital advanced by the society promoting the scheme, which body will at the end of fifty years hand over to the state the whole undertaking on conditions to be hereafter arranged. The estimated total cost of the project is $1,800,000, all the land over which the speedway runs being the private property of the French government.

In order to popularize the proposed Biarritz-Arcachon automobile road, a number of excursions have been made through the country, to which have been invited prominent automobilists, state officials and members of the automobile and general press.



PROFILE OF PROPOSED AUTOMOBILE SPEEDWAY ON THE ATLANTIC COAST OF FRANCE.

One of these excursions, which had to be conducted entirely on horseback, owing to the lack of roads, was terminated last week, much to the pleasure of those taking part in it.

The speedway will be brought prominently before the public during the Paris show, and as the only difficulty now is that of finance, the promoters hope within a short time to receive sufficient support to commence actual operations.

French Road Racing in 1906.

PARIS, Dec. 7.—At last all uncertainty as to the attitude France would adopt with regard to road racing next year is at an end. A few days ago the committee of the Automobile Club of France decided to ask the opinion of the *Chambre Syndicale de l'Automobile* (constructors' section) on this question, and a meeting of that body was held immediately.

About fifteen of the most important French constructors were present, including Messrs Brasièr, Renault, De Turckheim (De Diétrich), Clément and the Marquis de Dion, and on the question being put as to the advisability of a speed test next year, eight voted in favor and not one vote was given in protest. The president of the body, the Marquis de Dion, who never races and who is known to have no enthusiasm for speed tests, refrained from voting, and curiously enough it was he who was charged to present the constructors' resolution to the Automobile Club of France.

Last night the committee of the A. C. F. met, and, after a long discussion, decided to promote a long-distance road race, the organization of which should be left to the sporting commission of the club. Nothing further is yet officially decided, but it can safely be predicted that the Grand Prix scheme of last December will again be brought forth, and there is a probability of it being run on the Aix-les-Bains Circuit in Savoy.

The Automobile Club of France will thus have three great events for next season: The Grand Prix, a long-distance road race; the European Circuit, a 3,000-mile touring event through Europe for all classes of automobiles, and a tire race, in which tires or spring wheels will be given the importance usually attached to motors.

Racing events in Europe will not be lacking next year, the following big runs being assured: The Grand Prix of the Automobile Club of France; Ardennes Circuit; Florio Cup, on the Brescia Circuit; German road race on the Taunus Circuit.

It is true that the German Automobile Club has decided not to race next year, but the move just made by France will be very likely to change her decision. Count Sierpotorpft, although not one of the most enthusiastic racing members of the club, declared during a recent visit to Paris that if the Automobile Club of France organized a road race his club would do the same.

As to the Gordon Bennett cup race, it must be admitted that this trophy is now dead and buried, at least in its present form and so far as France is concerned. Some decision may be reached by the conference which is about to meet in Paris, but it is certain that it will not be competed for under former conditions.

What France desires, and what she will provide for in her new event, is a race open to all the world, three cars for each firm, or set of firms where the same license is used by several constructors, and a 350 to 400 miles run without controls. It is proposed—and the proposition is said to come from M. Brasier—that an unlimited number of tires should not be allowed, as in the past, but that each car should carry its own limited reserve and make all changes and repairs with the tools on board.

Many automobilists here appear to have lost faith in the Auvergne Circuit as the most searching automobile test, and as the result of this year's experience are more inclined to a road similar to the Long Island Circuit than to the one on which the Gordon Bennett cup was contested. On a short circuit each competitor is kept more closely in touch with his fellows and the race gains in interest and excitement. The Vanderbilt event also proved that the danger of competitors passing and repassing one another is not very serious. On the Ardennes Circuit, where the roads were good and a high speed could be maintained from beginning

to end, a larger proportion of cars failed to finish than on the mountainous Auvergne track. The Vanderbilt Cup Circuit, so much decried in France a few months ago, is now put forward as a model for the 1906 Grand Prix.

GORDON BENNETT RACE DECISION POSTPONED.

Special Cablegram.

PARIS, Dec. 17.—The delegates to the international race conference, before adjourning to-day, censured America for the bad organization of the last Vanderbilt Cup Race and decided to hold another conference in June to decide the fate of the Gordon Bennett race.

Voiturette Test Results.

PARIS, Dec. 5.—During the recent Voiturette contest around Paris, a portion of the road was so thickly strewn with nails that almost a complete disorganization of the contest resulted. Yesterday the committee of the Automobile Club of France met and decided that the stage from Paris to Mantes, on which the nail fiend had been at work, should remain as a part of the contest, the result of the seven days' test thus being:

Position.	Car.	Driver.	Penalty Points.
1.	Vulpes	Barriaux	241
2.	De Dion-Bouton	Lionel de Dion.	327
3.	De Dion-Bouton	Cormier	439
4.	Lacoste & Battmann	Gachel	502
5.	De Dion-Bouton	Bardin	561
6.	Grégoire	Tavenaux	1,334
7.	Lacoste & Battmann	Rochay	1,726
8.	Grégoire	Renoncé	3,437

De Dion-Bouton thus won the regularity cup, all three cars having finished the seven days' test. Cormier was particularly unfortunate. During the first five days he had not a penalty point against him, but when the nails appeared he suffered badly and lost his chance for first position.

The Vulpes car, which came out of the contest with the smallest number of penalty points, was, it is interesting to note, one completely mounted on the morning of the race. During the first day's run 65 points were lost, and although the terribly bad roads got worse rather than better not a single point was lost during the remaining five days. On the hill climb the car came out first, but on the kilometer level speed test and on the 500 meters standing start and finish 176 points were lost, making up the total of 241 penalty points.

All the competitors are not satisfied, and quite a number of protests came before the Automobile Club of France, all of which were overruled.

Lacoste & Battmann were particularly vexed at the club decision, declaring that they had lost their position through being told by a member of the commission that the nail-strewn section was annulled. As a public demonstration of the fitness of the car, they have sent away Gachel on the vehicle, which has just covered nearly 800 miles, on a run from Paris to Bordeaux and back, a total distance of about 700 miles. A further demonstration of a rather unusual nature is also being undertaken. A complete runabout will be fitted up and make the journey from Paris to Bordeaux and return in fifty hours. Every part of the car will be new, never before fitted together, and at 6 o'clock in the morning every part will be stamped, the assembling begun two hours later, and the car sent away on its 700-mile journey at about 2 o'clock in the afternoon.

Foreign News Notes.

The Herkomer contest has been settled so far as the route is concerned at a meeting of representatives of the German, Austrian and Bavarian clubs in Berlin. The schedule for the tour is: First day Frankfort-on-Main to Munich; second day, Munich to Linz; third day, Linz to Vienna; fourth day, a rest in Vienna; fifth day, Vienna to Klagenfurt over the Semmering mountains; sixth day, Klagenfurt to Innsbruck; seventh day, Innsbruck to Munich. Speed trials in the Forstenried Park will follow the conclusion of the tour.

* * *

The 90-horsepower Mercedes of the late Clarence Gray Dinsmore has been bought by the German Emperor, whose attention was drawn to the car during the last army maneuvers, when Mr. Dinsmore placed it at the disposition of the staff.

* * *

The German Automobile Club has decided to drop the projected international road race over the Taunus course for next year, owing to the desire of the home industry not to be disturbed in its attention to touring car manufacture.

* * *

The British Motor Yacht Club has obtained the charter of the late Admiralty Yacht *Enchantress*, which will be used for the purpose of a floating clubhouse on Southampton waters. The vessel is well suited for the purpose, as she is fitted with a large number of state rooms and has ample saloon accommodation.

* * *

The Auto-Cycle Club of England is promoting a reliability tour from Land's End to John O'Groat's in June, open to all types of motorcycles, including tri-cars. Selection trials for the motorcycle international cup race to be held in Vienna, by virtue of Wondrich's victory in France this year, and a tour to the Austrian capital are some of the chief events in the coming season's program.

* * *

Among six cash prizes aggregating $8,000 offered by the King of Italy for international competition on the occasion of the exposition in Milan in 1906 is one of $1,000 for automobile boats.

New Decauville Garage.

Coincident with the announcement of the completion of its handsome new garage in Broadway and Fifty-sixth street, New York, the Decauville Automobile Company makes public the information that in addition to the Decauville and Franklin cars, it has arranged for the New York agency of the Charron, Girardot & Voigt (C. G. V.) cars and the English Daimlers. Thus the company now has the representation in America of two leading French cars, one of the most prominent English machines, and an American air-cooled automobile that stands second to none. In addition to the foreign cars, this company holds the American patent and selling rights for many French accessories and supplies.

The new home of the company, which is illustrated in the accompanying engraving, is claimed to be the largest structure in the world erected as an automobile retail and storage establishment and maintained as

FRONT ELEVATION OF NEW BROADWAY GARAGE OF DECAUVILLE AUTOMOBILE COMPANY.

such. Its construction and occupation accentuate the "uptown exodus" of New York automobile agencies and the creation of a new automobile center near the Columbus Circle entrance to Central Park.

Although only three stories high at present, the steel frame has been constructed with a view to continuing the structure to a height sufficient to provide for the ultimate accommodation of 1,000 cars.

The office and salesroom will be in a part of the building having a 50-foot frontage on Broadway and extending back 60 feet. The garage and repair departments occupy a building in the rear of this that extends entirely through the block from Fifty-fifth to Fifty-sixth streets, a distance of 200 feet and having a frontage on both streets of 75 feet.

Sundries and supplies will be carried in the accessories department in a separate building standing on a piece of land 25 by 70 feet which extends from the middle of the Broadway front of the block to the garage in the rear, with which it is connected.

The business plans of the company for the future are coextensive with the increased facilities it will have following its occupation of these fine new quarters.

New Atlas Trucks.

A type C heavy delivery wagon of about 2,500 pounds carrying capacity fitted with a 25-horsepower Libby twin-cylinder, two-cycle vertical motor is to be put out early in the spring by the Knox Motor Truck Company, of Springfield, of which Harry Knox is president. This delivery car will supplement the two-ton and three-ton Atlas heavy trucks designated types A and B. The Springfield company has acquired the exclusive right to use the Libby engine on commercial vehicles throughout the world.

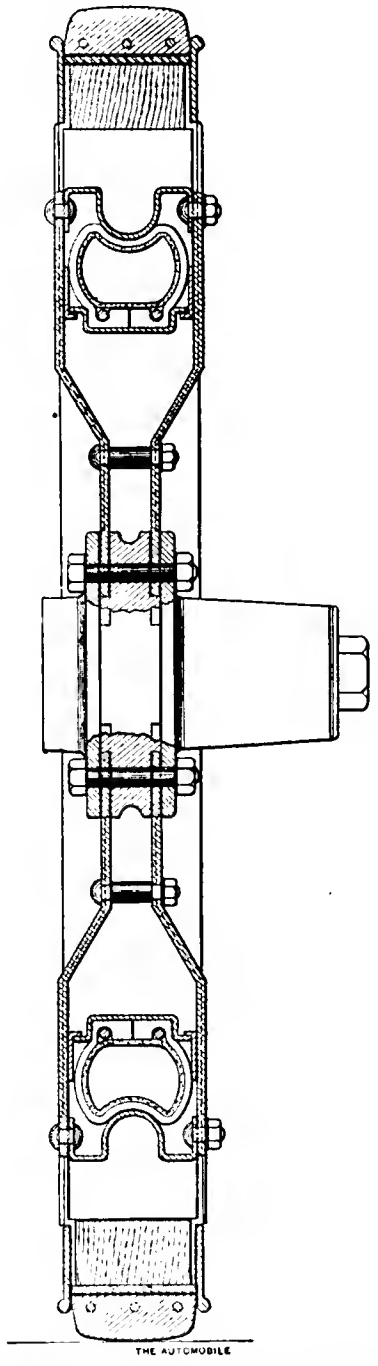
One of the three-ton Atlas trucks was delivered recently to the E. B. Eddy Company, of Hull, Canada. It is claimed to be the first automobile truck of any description to be used in the Province of Quebec.

Last week the Springfield Gas Light Company received delivery of the first one of the improved 1906 model Atlas trucks yet delivered. All future and deliveries for the coming season will be of this type, in which the following changes and improvements have been made:

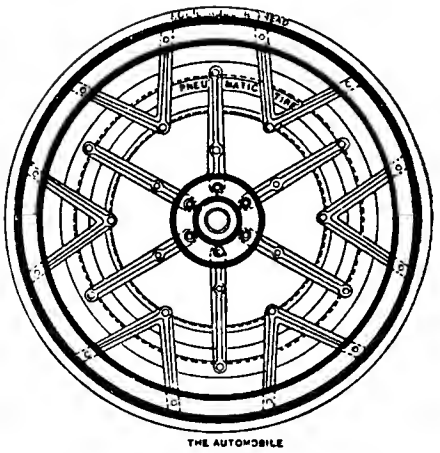
The front end of the main frame has been mounted upon the front springs instead of being connected directly to the front axle; a 5-inch side frame with heavy reinforcements is used instead of a 4-inch frame; a 4-inch cross angle with stronger attachment is used under the engine instead of a 3-inch angle; the carbureter has been improved to give, it is claimed, 15 per cent. more power and better regulation; spark lever on the steering wheel has been discarded, the spark now being automatically retarded in a very simple way; 6-inch solid tires replace the 5-inch tires on the three-ton truck and the 5-inch tires are used on the two-ton truck in place of 4-inch tires; hardened plates have been placed where the body rides on the springs; the bodies have been refined in appearance and other minor improvements have been made.

Puncture Proof Pneumatics.

One of the latest of the many attempts that have been made to devise resilient wheels to take the place of pneumatic tire wheels of the usual type is illustrated by the accompanying line engravings, and is called the iron-tired pneumatic wheel. The Iron-Tired Pneumatic Wheel Company is located at 259 Fifth avenue, New York.



AUTO WHEEL WITH SOLID TIRE IN CONTACT WITH GROUND AND CONCENTRIC PNEUMATIC TIRE.



SIDE VIEW OF WHEEL.

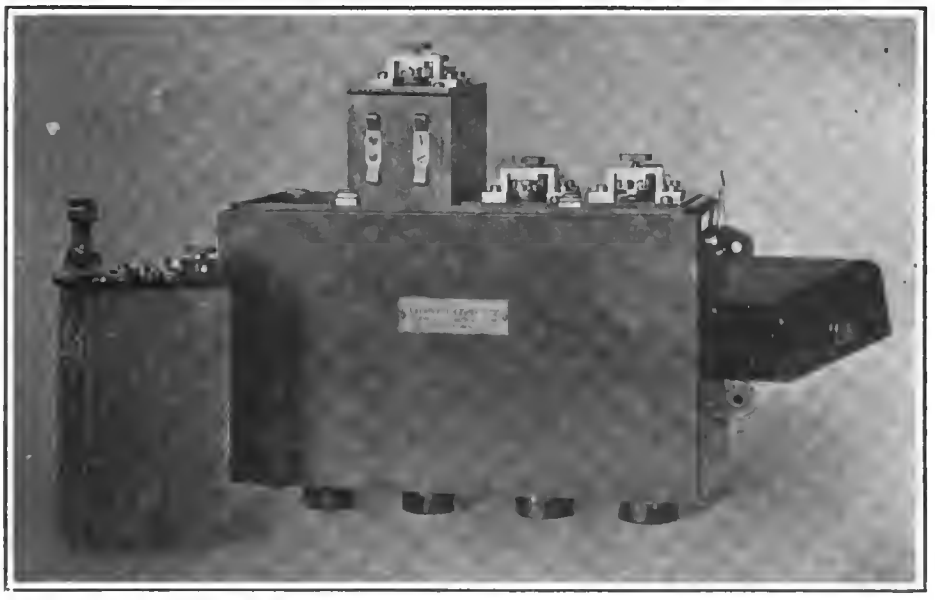
The principle of the device is that of a wheel built within a wheel with a pneumatic tire between them, two sets of short spokes being employed to keep the two wheels in the same vertical plane. By inspecting the drawing it will be seen that the inner wheel includes the hub which is mounted on the axle of the car. From the hub radiate short, flat steel spokes, the outer ends of which are bolted to a steel rim whose inner surface is of convex cross section; this is the tread of the inner wheel and rests on the outer circumference of the pneumatic tire. The pneumatic is attached to a rim whose diameter is, of course, smaller than that of the rim first referred to; this inner rim is rigidly connected with the outer rim of the wheel, to which the road tire is attached, by pairs of spokes arranged, as the drawing shows, to form a series of triangles. The result of this arrangement is that the weight of the car is carried on the top of the pneumatic tire, the spokes of the wheels being under tension. The tire is thus subjected to no wear from the road and is removed from danger of puncture. The road tire may be of any desired kind; steel would naturally suggest itself for heavy commercial vehicles and solid rubber for pleasure cars and light delivery wagons. The manufacturers state that the resiliency of this wheel is fully equal to that of an ordinary wheel with a pneumatic tire, while the speed possibilities are greater and the wheel is extremely strong and can go on any road that an ordinary iron-tired wheel could travel.

The prospective automobile tax in Germany has alarmed the makers, as the coming into force of such a law means a crippling of the trade. The Imperial Ministry of Finance hopes to realize a fund of 3,500,000 marks ($700,000) by the tax, which for the single car would mean an annual payment of 100 to 150 marks ($20 to $30).

Automobiles do raise a good deal of dust on Long Island, and that's a fact. They also raise a good many mortgages when the farmer gets his scorching victim in a corner.—New York *Telegraph*.

Connecticut Spark Coil.

A high-tension ignition coil that possesses a number of claims upon the attention of automobile builders and owners is offered in the market under the name Connecticut, by the Connecticut Telephone and Electric Company, of Meriden, Conn. This coil, which is illustrated herewith, is built on the unit system, each of the four coils composing the standard style being separately and independently removable. The coils are arranged in pairs in the mahogany case, with a partition between the two pairs, and each coil is self-contained in a neat wooden case with hard rubber insulated top. There are no binding posts whatever on the individual cases, simple automatic devices taking their places. When the unit coils are lowered into place in the large case a contact plate in the base of each rests upon a spring in the bottom of the coil box which effects the connection for the secondary current. Attached to the outside of the box beneath



SPARK COIL BUILT ON UNIT SYSTEM, WITH ONE OF THE UNITS REMOVED.

these springs are four hard rubber insulated sockets or aprons, to receive the ends of the large cables for the high tension current, and to prevent water that may run down the box from coming into contact with the cable ends and cause short circuiting.

Positive and negative connections for the primary current are effected by means of eight vertical copper strips sunk into the inner side of the large case and an equal number of metal springs screwed two to the front side of each separate coil. A bevel edge on the rear of the hard rubber top of the coil forces the top forward when the coil has sunk entirely home, insuring perfect contact between the springs and copper strips. When the coils are in place a spring catch holds each firmly in position, preventing any possible jolting upward.

By the construction described, the only thumb-screw binding posts required are five, on the outside bottom of the coil box, where the low-tension primary current wires are attached, numbering five in all.

As the four individual coils are instantly removable and interchangeable without the need of disconnecting and connecting up again any wires by hand, a ready means is provided for testing the electrical condition of the individual coils; should there be defective sparking in any cylinder a transposition of coils will at once determine whether or not it is the coil that is at fault.

Particular attention has been devoted by the makers to the electric qualities of the coil and to the mechanism of the vibrator, with the result that not only is most unusual convenience in adjustment secured, but the coil is remarkably efficient and reliable, it is asserted. The core of the coil, instead of being made of a single piece of soft iron, is composed of a multiplicity of wires, and there are three windings of wires around the coil instead of the customary two windings. thus developing an intensely energetic secondary current on a low amperage consumption. The makers of the coil claim that they never have found a case even in engines of the highest compression, in which they could not fire the charge perfectly on one-quarter ampere of current per hour, and know of cases in which cars have been run perfectly on one-twentieth of an ampere. Such low consumption of current, of course, contributes to long life of the batteries. As the rate of consumption by a coil depends in some measure also upon nicety of adjustment of the vibrator, it is reasonable to assume that much of the good result obtained by the Connecticut coil is due to the great care expended in devising and constructing the vibrator.

The vibrator itself is made of a broad strip of special spring metal, chosen after experiments had been made with more than a score of different metals. It is of the simplest form known and is arranged to give the most rapid vibration possible, resulting in the production of an intensely hot spark. Adjustments of both the vibrator blade and the contact point on the bridge are self-locking by very ingenious thumb screw and nut arrangements. The bridge is screw-threaded to receive the thumb-screw, which carries at its lower end the upper contact point and has a hexagonal recess on the under side of the arch to receive a nut. This recess is deep enough to hold a small steel coil spring above the nut. Whatever tension is put on this spring by hand when the thumb-screw engages the nut is maintained permanently and serves to keep the screw from working either up or down and changing the adjustment of the point.

A somewhat similar arrangement locks the adjustment of the vibrator blade, which is socketed in a brass plate pivoted at its front end in a brass holding piece and having a thumb-screw and coil spring at its rear end. When it is desired to clean the contact points, the bridge can be readily removed. The feet are slotted so that when the screws that hold it to the top of the coil are loosened slightly the bridge can be slipped off.

The workmanship on all the visible parts described is of superior character and the coil in its entirety presents a very neat appearance. As evidence of the quality of the Connecticut coil, the manufacturers point to the record made in the Long Branch non-stop endurance contest last August by the Corbin car, which was equipped with one of these coils, and to a mileage of 12,000 miles without touching the adjustments, which was made last summer by F. C. Billings, of Hartford, Conn. Stock coils were used in both machines.

CHICAGO INTERESTED IN AIRSHIP.

CHICAGO, Dec. 18.—The Chicago Aero Club, which is being fostered by Dr. Harold E. Thomas, has received new impetus since the flight of Horace B. Wild in his new airship last Wednesday.

This was the initial attempt to fly the ship, and the trial was fairly successful. An altitude of 2,500 feet was reached and Wild sailed about for nearly half an hour. A few minutes after he had started the gasoline gave out and he lost control of the ship. The wind carried it higher and higher, and the aeronaut saw that his only hope lay in getting the gas out of the bag. The cold had so numbed his hands that he could not untie the rope that held the valve, and he was forced to bite at the knots with his teeth, meanwhile holding onto the net with his hands. The trail rope was finally caught by a crowd of men and boys and the car brought to a stop.

The airship is the property of A. J. Jones and is called the *Eagle*. It is 70 feet long and is similar to Roy Knabenshue's ship. The engine is 12 horsepower and was designed by Wild, who is an electric engineer.

Thomas 50-Horsepower Flyer for 1906.

LIKE many other American manufacturers of automobiles, the E. R. Thomas Motor Company, of Buffalo, N. Y., has made only detail changes in designing its 1906 car; some of the details changed are important and interesting, however. In appearance and general arrangement the car is similar to the 1905 four-cylinder Thomas Flyer, the characteristic body, which has been patented, being still a feature. Generally speaking, it may be said that the 1905 50-horsepower Thomas is a touring car of the conventional type, with four-cylinder, vertical, water-cooled engine, four-speed sliding gear transmission, side chain drive, pressed steel framing and side-entrance body. Only one model will be built for 1906.

Perhaps the most important changes made in designing the new car are in the substitution of mechanically operated inlet valves for the automatic valves used on last year's engine, and the placing of the valves on opposite sides of the engine instead of all on the same side, with the inlet valves on top; and in the use of a disc clutch in place of the leather-faced cone formerly fitted.

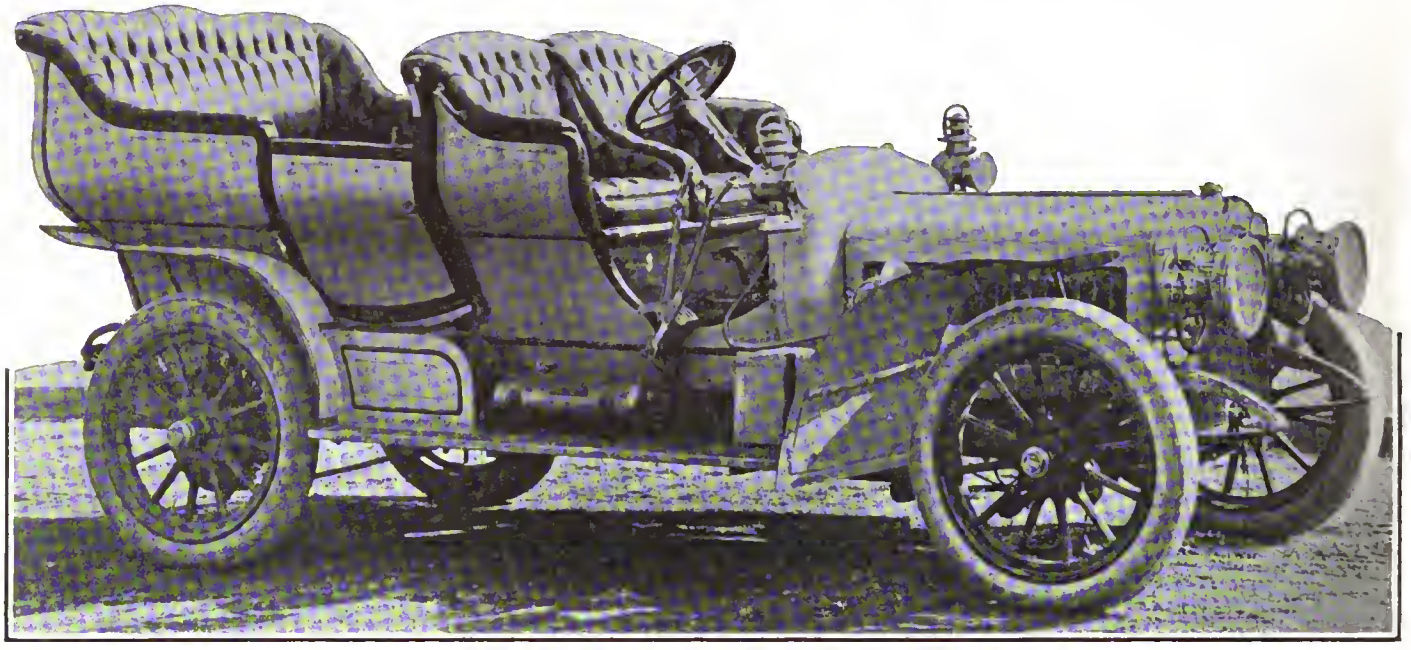
The individually cast cylinders have integral heads, water jackets and valve chambers, with the usual plugs over the valves, through which the latter may be removed; the bore and stroke are each 5 1-2 inches. The valves, located on opposite sides of the cylinders, are all alike and mechanically operated. The plugs over the valves are held down by steel yokes, there being a separate yoke for each valve opening. The camshafts, one on each side, are driven direct from the crankshaft and run in babbitt bearings lubricated from the oil in the crankcase, except the front bearings, which are fitted with grease cups. The camshafts are driven from the front end through a steel pinion and fiber gears, covered by a protecting metal guard. The cams act on short pivoted levers, which in turn act on the push-rods; the levers carry rollers to take the cam thrust. Each cam is covered by a little housing of its own, with an opening into the crankcase; between the housings the camshafts are exposed.

With the exception of the connecting rod bearings, all the bearings in the motor are babbitted; the connecting rod bearings are of bronze and the rods are steel forgings. The five crankshaft bearings are all attached to the upper half of the horizontally divided aluminum crankcase. The main crankshaft bearings, at the ends of the crankcase, are lubricated by chain oilers dipping into capacious oil-wells; the supply of oil is said to be sufficient for a thousand miles running. The intermediate crankshaft bearings are lubricated by splash, while the cylinders are oiled by force feed. The crankpins and the piston pins are drilled through and are adapted to carry oil to the bearings of the connecting rod; the hollow pins are at the same time lighter than if solid.

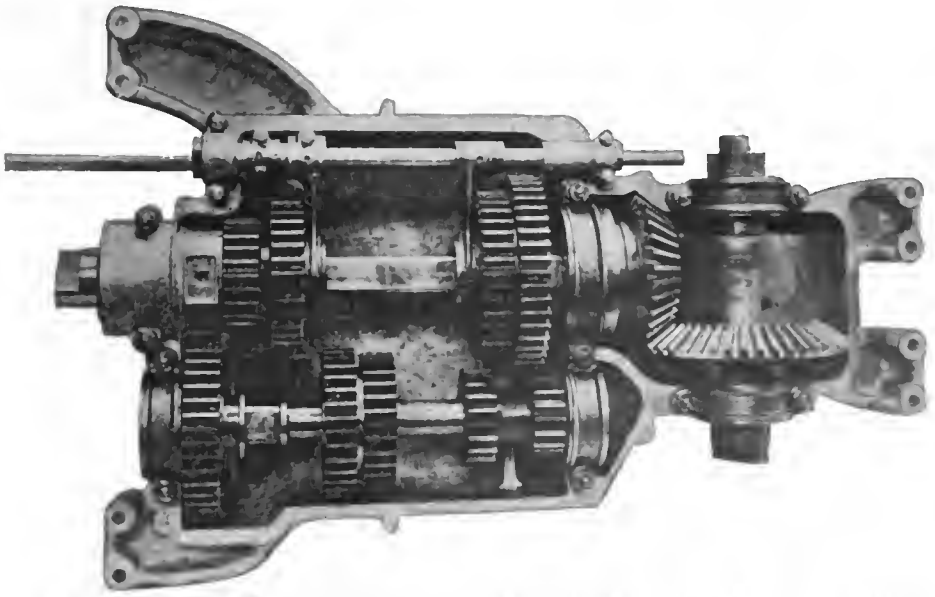
Ignition is by jump spark; the most interesting feature of the ignition system is the distributer. A single coil is used, located on the dashboard; the distributer is also on the dashboard, and is at the same time a high-tension distributer and a primary contact maker, the high-tension current being regulated at the front and the primary current at the back of a cylindrical casing. The timer is driven by bevel gearing from the exhaust camshaft, a vertical intermediate shaft being fitted with a universal joint. Current is furnished by a storage battery. The spark plugs are inserted in the inlet valve chambers, and the current is carried to them through cables inclosed in a fiber tube. A lever on the steering wheel controls the time of ignition, in the usual way.

Circulation of the cooling water is maintained by a gear-driven gear pump, located on the exhause side of the motor and driven from the exhaust camshaft. The radiator is firmly braced by means of steel rods, with turnbuckles for adjustment, extending backward. The fan is supported in bearings carried by a framing attached to the radiator, and is driven by a belt which can be adjusted as to tension.

An intersting feature of the Thomas car is the clutch, of the disc type, but differing from the majority of disc clutches now in use. The clutch shaft has its forward end squared, and on the squared portion slides the steel hub of a manganese bronze spoked disc 20 inches in diameter. Studs are screwed into the rim of the flywheel clear of the edge of the disc, and on these studs are placed two cast iron discs, holes being drilled in the discs to correspond with the studs; between the cast iron discs is the bronze disc. The outer iron disc carries pivoted levers whose outer ends enter slots cut in extensions of the studs already referred to, and whose inner ends are adapted to be pressed toward the flywheel by a ball bearing collar on the sliding sleeve by which the clutch is controlled. Thus, when the sleeve is pushed forward by the usual clutch spring, the pressure on the levers tends to bring the iron discs (rotating with the flywheel) together, the bronze disc is pressed between the iron discs and, if the pressure applied is sufficient, is forced to rotate with them, carrying with it the clutch shaft. The forward end of the clutch shaft is carried in a bearing formed by boring out and bushing the end of the crankshaft. When the clutch is disengaged the cast iron discs are



THOMAS FLYER MODEL 31 FOR 1906, FITTED WITH 50-HORSEPOWER, FOUR-CYLINDER ENGINE.



THOMAS SLIDING GEAR TRANSMISSION, GIVING FOUR FORWARD SPEEDS AND REVERSE.

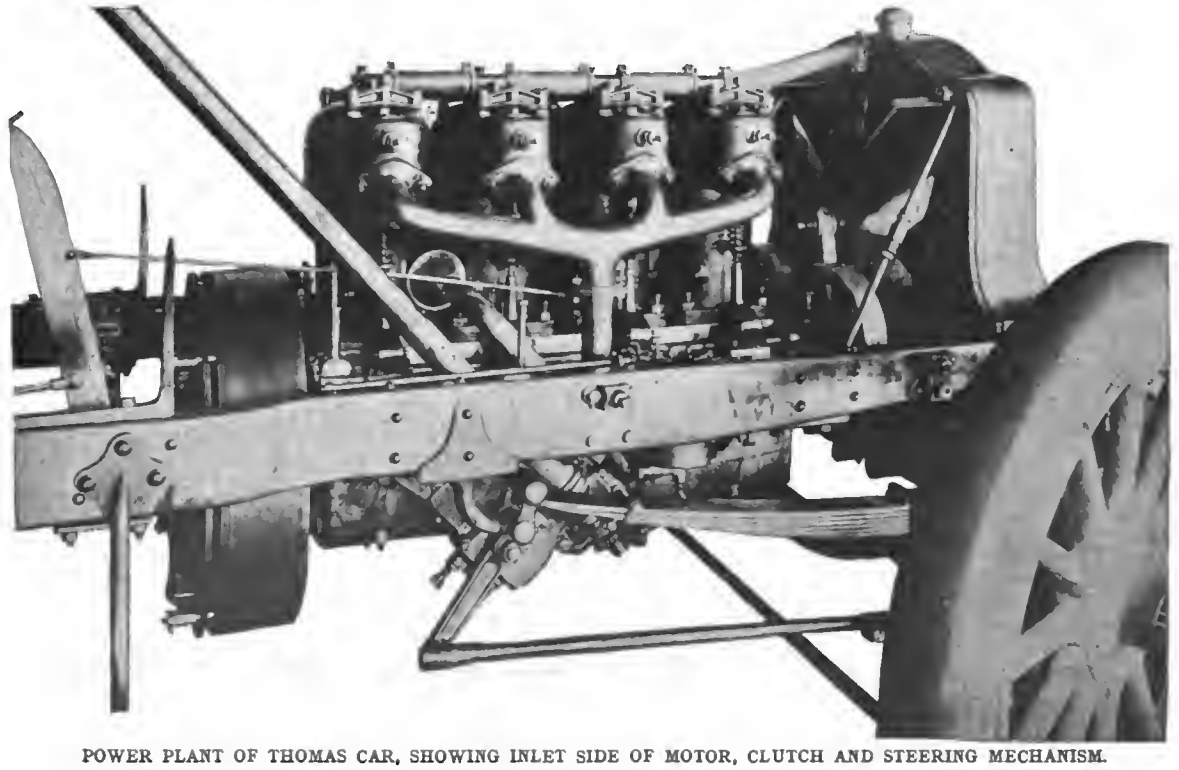
forced apart by springs, so that there is no drag. Adjustment for wear is readily made by means of set-screws, against which the outer ends of the levers bear; the tension of the clutch spring is also adjustable by means of a nut working on a thread cut on the clutch shaft.

The sliding gear transmission of the 1906 Thomas car gives four speeds forward in place of the three speeds provided in the 1905 machine; the drive in the high gear is direct without any gears in mesh except, of course, the bevel driving gears. Non-adjustable ball bearings have been substituted for plain bearings, and the control is by a lever of the selective type. There are two shifting units, each with its separate shifting rod. One of the advantages of the selective lever for shifting gears is that, starting from neutral point, any speed out of the four can be engaged at once without going through any of the intermediate gears; and, if any gear is engaged, the neutral point can be reached at once without passing through other gears. The engraving of the transmission gear with the upper half of the aluminum case removed shows the direct drive clutch locked. When any of the intermediate speeds are engaged, the largest gear on the countershaft meshes with the pinion on the forward end of the primary shaft; when the claw clutch of the direct drive is thrown in, the larger gear is automatically moved out of mesh, so that the countershaft is stationary. When the direct drive is disengaged, the gear returns to its position in mesh with the pinion. The gears have teeth of 6 pitch and 1 1-4 inch face and are hardened. An interlocking device holds the idle sliding gears stationary so that they cannot shift while they are not in use; the gears cannot be shifted until the clutch is fully withdrawn, and the clutch cannot be engaged until the gears have meshed properly.

The differential, composed of spur gearing, occupies a rearward extension of the gearcase, together with the bevel driving gears. The two halves of the jackshaft are driven through universal joints, the arrangement being clearly shown in the engraving, showing the joints just outside the differential casing. The sprockets on the outer ends of the jackshaft are concave, the shaft bearings being so placed that the chain pull is directly in line with the center of the bearing. These bearings are ball bearings of the non-adjustable type, as are also the rear wheel bearings; the latter are double, so that the chain pull is taken between two bearings.

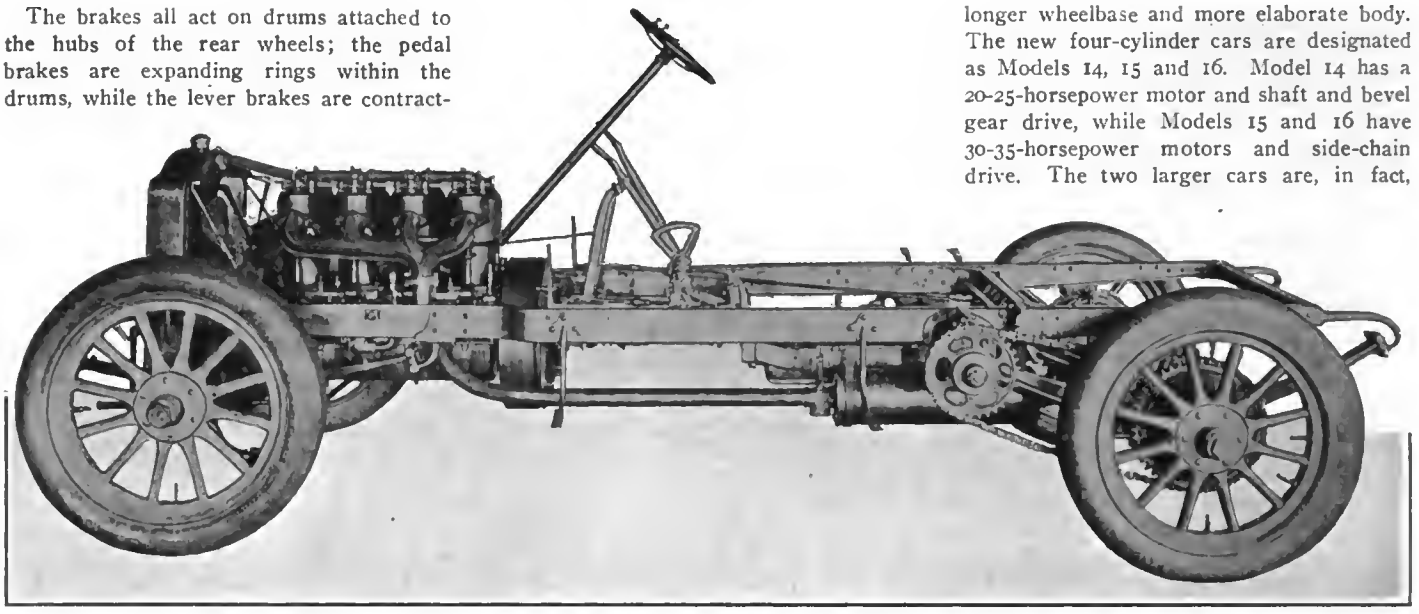
The main frame, narrowed in front, and the cross frames are of the usual pressed steel construction; no front cross member is used, the arms of the engine crankcase, which are bolted direct to the main frames, serving the purpose. The rear cross member and the two cross members carrying the transmission gearcase and bracing the center of the framework are hot riveted to the main frames, large gusset plates adding stiffness.

The springs are long, 52 inches front and rear, and are of the semi-elliptic type, 2 1-4 inches wide. The wheelbase of the car is 117 inches and the tread standard; the wheels are 34 inches in diameter, with 4 1-2-inch tires, and run on ball bearings. The steering gear, of the worm and sector type, is readily adjustable for wear.



POWER PLANT OF THOMAS CAR, SHOWING INLET SIDE OF MOTOR, CLUTCH AND STEERING MECHANISM.

The brakes all act on drums attached to the hubs of the rear wheels; the pedal brakes are expanding rings within the drums, while the lever brakes are contracting bands on the outside of the same drums. The sprockets that carry the driving chains are bolted to flanges formed on the outside of the drums. The bands of the emergency brakes are lined with leather; equalizers are fitted to both sets, so that the pull on the brakes is evenly distributed. Adjustment for wear is amply provided for. The axles, both front and rear, are of steel of I-beam cross section; the front axle is dropped while the rear axle is straight; the steering knuckle forks are forged integral with the ends of the front axle.



CHASSIS OF THOMAS FLYER MODEL 31, SHOWING EXHAUST SIDE OF ENGINE.

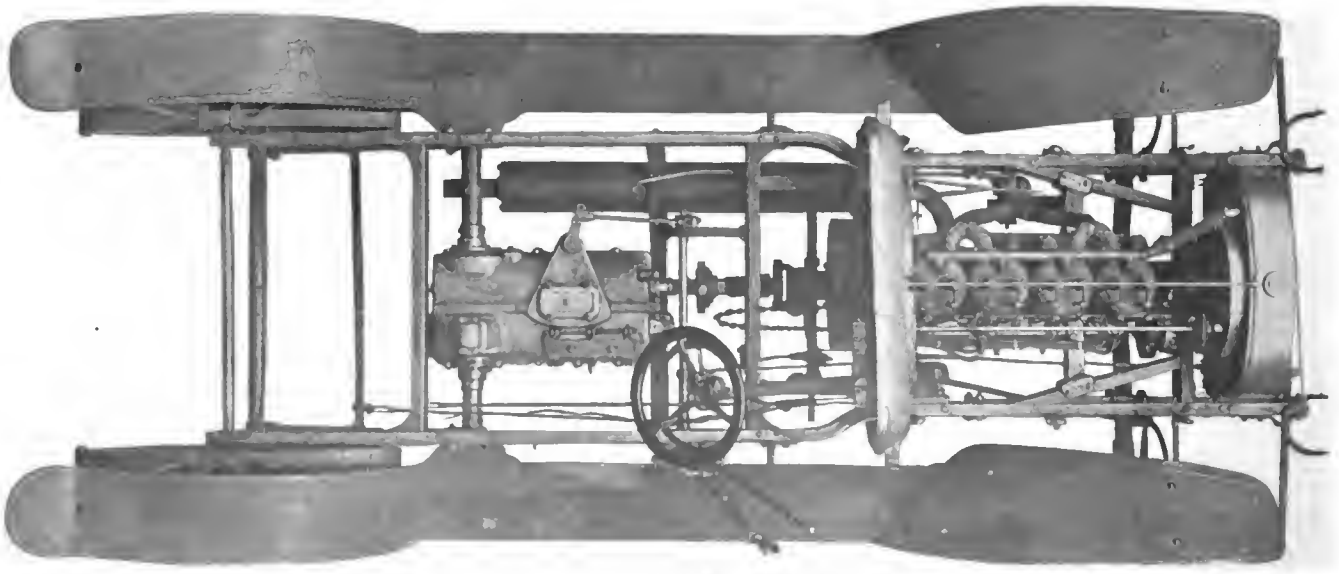
The engraving of the complete car shows the well-known Thomas lines, with recessed dash containing two tool lockers, one on each side, as seen on the 1905 Flyer. The body is built throughout of sheet steel. A novelty is in the seating arrangements in the tonneau; two comfortably upholstered revolving collapsible seats are provided, so that the total carrying capacity of the car is seven passengers, the rear seat being amply wide for three adults. The front seats are of the popular divided type, and all seats are deeply and comfortably upholstered.

Seven Rambler Models for 1906.

NO less than seven models will be included in the line of Rambler cars manufactured for the season of 1906 by Thos. B. Jeffrey & Co., of Kenosha, Wis. Of these three will be radical departures from the type of Rambler cars hitherto manufactured, as they will embody four-cylinder vertical motors, sliding gear transmissions and other features usually found in the foreign type touring cars. Three models will be practically identical with 1905 cars; Type I, an 18-horsepower surrey, Type II, a 20-horsepower surrey, and Type III, which is practically Type I with a longer wheelbase and more elaborate body. The new four-cylinder cars are designated as Models 14, 15 and 16. Model 14 has a 20-25-horsepower motor and shaft and bevel gear drive, while Models 15 and 16 have 30-35-horsepower motors and side-chain drive. The two larger cars are, in fact, identical except for the body, which in Model 15 is a five-passenger, side-entrance touring body, while Model 16 has a limousine. The seventh model, Model 17, is a runabout with 12-14-horsepower, double-opposed horizontal motor.

All the four-cylinder cars are built on the same lines, the only differences being in dimensions and in the fact that the smaller car has shaft drive while the larger machines employ side chains. The 20-25-horsepower motor has cylinders of 4 inches bore and 4 1-2 inches stroke, while the 25-30-horsepower motor has cylinders of 5 inches bore and 5 1-2 inches stroke. The same description otherwise fits all three machines, so far as the mechanical equipment is concerned.

Cylinders are individually cast and have integral heads and water jackets; the valves are placed in the cylinder heads, side by side, thus obviating the use of special valve chambers. The valves are mechanically op-



CHASSIS OF RAMBLER FOUR-CYLINDER CAR FOR 1906, WITH MUD FENDERS IN PLACE, PHOTOGRAPHED FROM ABOVE

erated through rocker arms pivoted to brackets secured to the cylinder heads; the long push-rods which actuate the rockers extend through guides into the crank chamber and are lifted by short levers actuated by the cams.

A single camshaft on the right-hand side of the motor carries all the cams; the cams can be reached for inspection through a cover held in place by hinged bolts with thumb-nuts. The cams are made in pairs, the two cams for each cylinder being made integral with a sleeve which is mounted on the camshaft. Rollers on the levers take the thrust of the cams. Valve heads and stems are made separate. The valves are set in cages screwed in place and made gas tight by fitted metal to metal joints. The valve end of the rocker arm is fitted with an adjusting screw by which the valve lift can be varied. When it is desired to take out the valve the rocker arm is removed by taking out the fulcrum pin, held in place by a split-pin, when the cage can be unscrewed. The cylinders have long water jackets and are bolted to a horizontally divided aluminum crankcase, the three bearings for the crankshaft being carried in the upper half of the crankcase, the lower half, as is customary in modern four-cylinder motors, serving mainly as an oil-well and dust shield. Nickel babbitt is used for the motor bearings. Rambler practice is followed in fitting the pistons with six rings each, placed in pairs in three grooves, two above and one below the piston pin. Oil grooves are cut near the bottom to catch and distribute to the cylinders the oil splashed up from the crankcase. The piston pin is prevented from protruding and scoring the cylinder walls by a ring, similar to the packing rings, which is fitted in a groove and passes over the ends of the pin. Connecting rods are of I-beam section with hinged big ends and the piston pin ends split and fitted with pinching screws.

Spark plugs screw into the cylinders just below the inlet valves. Current for the jump spark ignition is furnished by a storage battery; a quadruple coil is mounted on the dashboard, and the timer, on the top of a vertical shaft, is bevel-gear driven from the rear end of the camshaft. A peculiarity of the timer is that when it is moved to change the time of ignition the connecting wires do not move with it, so that breakage and accidental disconnection from this cause are obviated. Spring hooks are used to make connection with the spark plugs, while globe wire connectors of special design avoid the use of thumb-nuts at the timer.

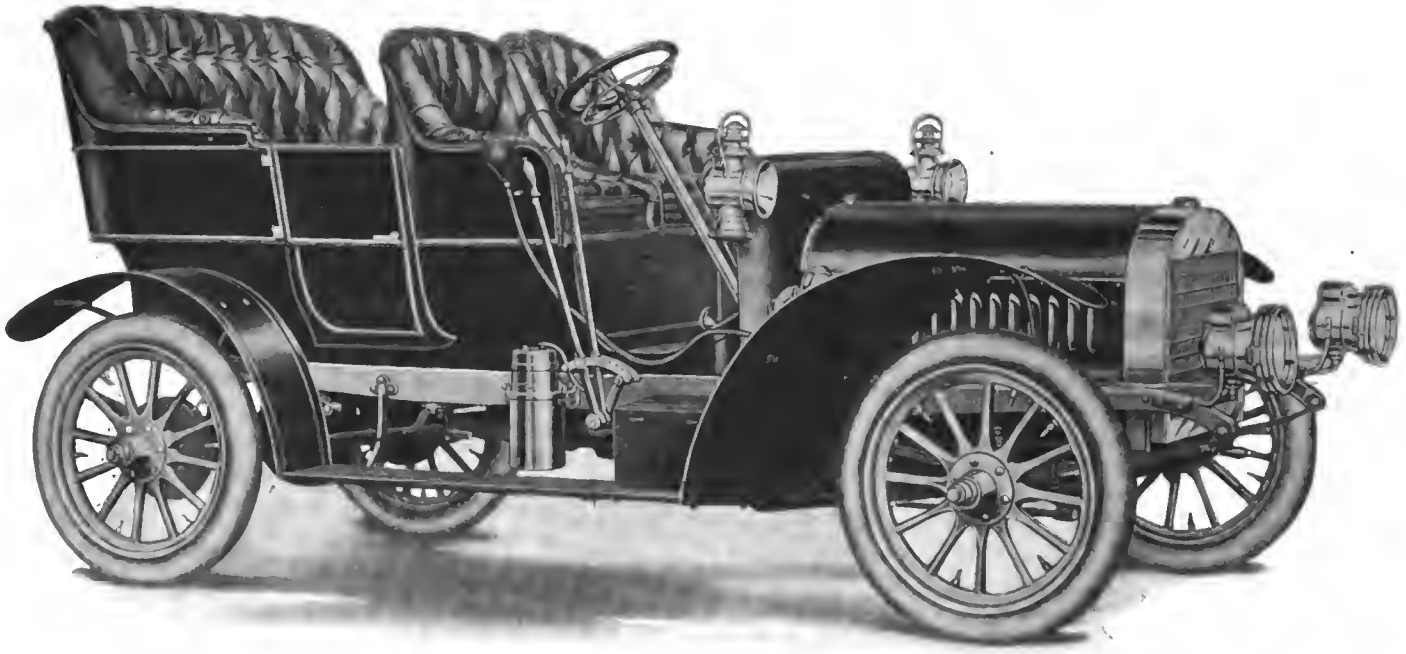
The front end of the camshaft drives the centrifugal circulating pump; the radiator is of flat brass tubes, 4 inches deep and 1-8 inch wide, extending vertically between top and bottom headers. Cross pieces are inserted to maintain the correct spacing between the tubes. The usual fan is placed behind the radiator and is belt driven from the forward end of the crankshaft. The fan is stamped out of a single piece of metal and the blades are afterward bent to shape.

The engine is suspended at three points. Two arms are cast on the upper half of the crankcase opposite the second cylinder, counting from the front, and are bolted to frame braces riveted across the front corners of the frame. The rear end of the motor is carried by a dropped frame upon which the rear bearing of the crankshaft rests.

The pulley on the fanshaft has two grooves, the first taking the fan belt and the second taking a belt driving a shaft which passes back to the dashboard and imparts motion to the McCord mechanical lubricator attached to the dash in view of the operator. Leads from the lubricator carry oil to each cylinder.

The carbureter is made in the Rambler factory and is automatic in action; it has the regular float arrangement for controlling the height of the gasoline in the spray nozzle, and an auxiliary air inlet which increases the air supply as the motor speed increases. A throttle valve is made part of the carbureter, and is operated by a tilting wheel on the steering column below the steering wheel. The same wheel shifts the time of ignition, the timer and throttle being interconnected; but when the throttle is opened as wide as the hand wheel can open it, there is a still greater opening, which may be utilized by pressing the foot-operated accelerator, though the spark cannot be further advanced.

The muffler, to which the exhaust gases are carried through a cast-iron manifold and an elbow, consists of a series of shallow double cones placed within a cylindrical shell. The two cones of each pair are placed so close together as to form a narrow passage for the gas, which is forced to pass through each pair of cones before reaching the outlet. A cut-out is fitted.



RAMBLER MODEL 14, 20-25-HORSEPOWER, FOUR-CYLINDER TOURING CAR, WITH SHAFT DRIVE AND SIDE ENTRANCE.

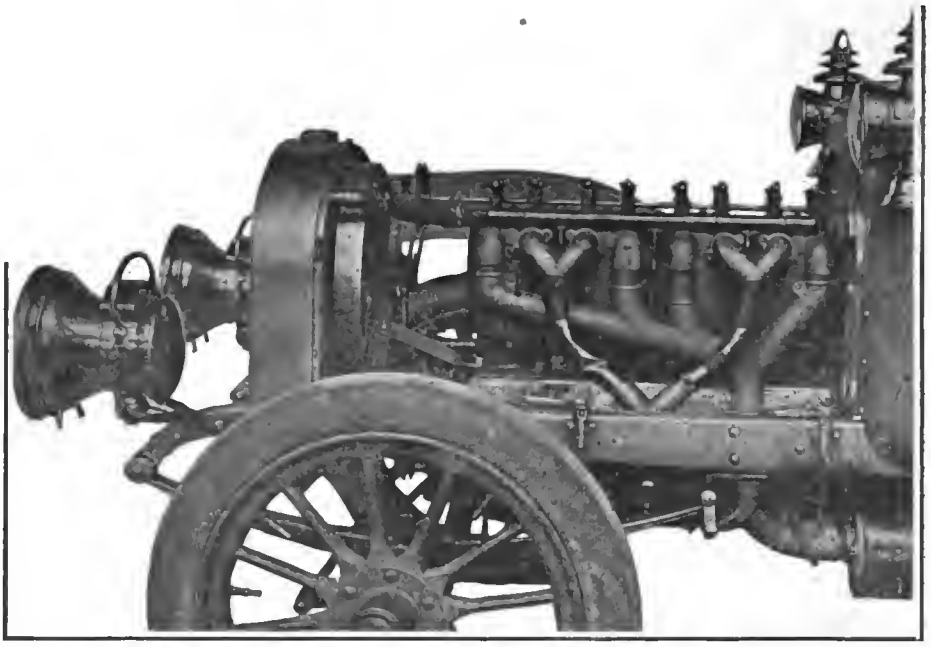
The leather-faced cone clutch which intervenes between the engine and the transmission gearing is of the customary type, though a departure from customary methods is made in enclosing the clutch spring and placing oil in the casing. Ball bearings take the thrust when the clutch is engaged. A joint is placed in the shaft between the clutch and the gearcase to take care of any temporary variations of alignment.

Three-speed sliding-gear transmissions are used, with direct drive on the high gear, the countershaft remaining stationary, and single lever control. The chain-driven car has a jackshaft driven by bevel gears in a

rearward extension of the gearcase, while the shaft-driven car has a universal joint just behind the gearcase. In the case of the shaft-driven car the thrust of the bevel-driving gears is taken by ball bearings. The gearshafts, like the crankshaft, run in plain bearings of nickel babbitt and are lubricated by the oil which is placed in the gearcase. Wire gauze strainers are placed in the oil-catching cups to prevent the entrance of grit and dirt to the bearings. The movement of the sliding gears on the square shaft is made easy by oil grooves cut in the shaft.

There is but one universal joint in the propeller shaft, placed just behind the gearcase. This is protected by a funnel-shaped housing filled with lubricant; the housing is bolted to brackets on the cross member of the frame at the rear of the gearcase; to the rear end of the housing are attached braces which extend to the outer ends of the tubular rear axle. By this arrangement the propeller shaft and the rear axle are maintained at right angles and a second universal joint is rendered unnecessary.

The framing of the car is of pressed steel, offset near the front, and pressed steel cross-members are riveted in place. Two pressed steel members are riveted across the two front corners of the frame at an acute angle with the side frames; these pieces are of sufficient length to carry the arms by which the motor is supported. The gearcase is supported, in the case of the chain-driven car, by the ends of the tubular sleeves of the jackshaft at the rear end and by a lug resting on a cross frame at the front end. In the shaft-driven car the rear end of the gearcase is supported from a cross frame by two bolts, while the front end is carried in a deeply dropped cross frame at a single point. Thus three point suspension is employed in all the four-cylinder models for both motor and gearcase.

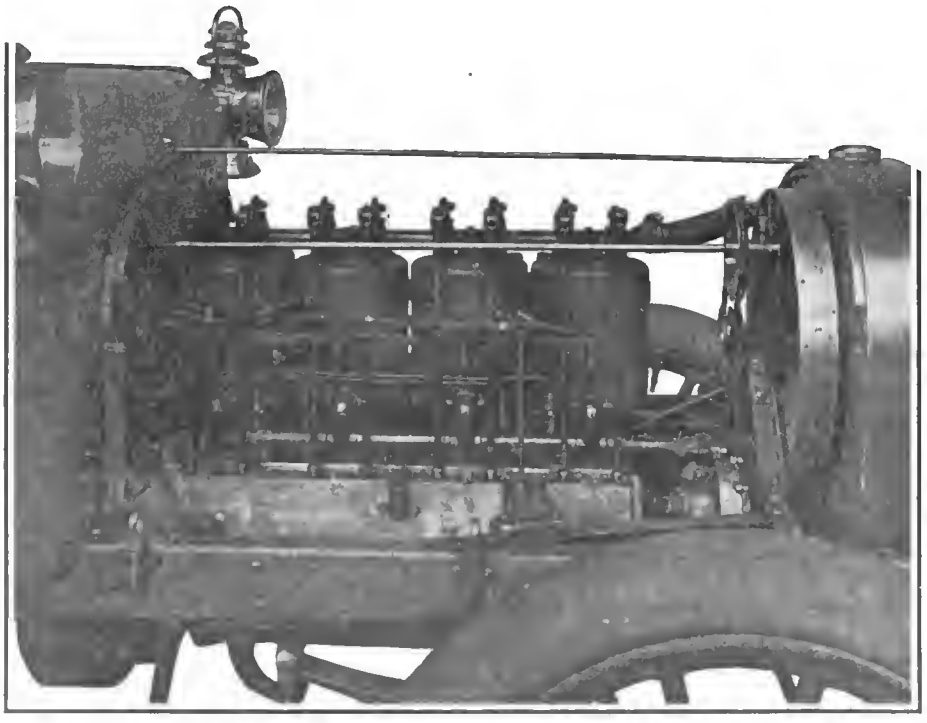


LEFT SIDE OF RAMBLER ENGINE, SHOWING INLET AND EXHAUST PIPES.

Two brakes are fitted, the emergency brakes on the hubs of the rear wheels and a regular service brake enclosed in the casing of the differential. The hub brakes are of the internal expanding type and are carried in drums made integral with the hubs. A compensating device insures an equal pull on each side when the emergency brake is applied.

The wheelbase of the larger car is 112 inches and the tread standard; the wheels are 34 inches in diameter and have 4-inch tires. On the smaller machine the wheelbase is 106 inches, tread standard, wheels 32 inches and tires 3 1-2 inches.

The touring car bodies are built after the straight-line design that is so popular at present; the dash is dished and the hoods are round-topped. The mud guards are large and running-boards extend between them, making steps for entering either the front seat or the side doors. The equipment which is included in the price of the car consists of a pair of acetylene headlights with separate generator capable of running both lights continuously for five hours; two oil side lamps, an oil tail lamp, tire repair outfit and a set of tools.



RIGHT SIDE OF RAMBLER ENGINE, SHOWING VALVE PUSH RODS AND WATER CONNECTIONS.

Motor Hose Wagon.

Automobiles are used by fire chiefs in a number of American cities for making quick runs to fires, and self-propelled fire engines are by no means unknown in this country. The hose wagon shown in the accompanying illustration is, however, somewhat of a novelty, though in France self-propelled fire apparatus has been rather extensively experimented with. The hose wagon illustrated is propelled by a gasoline motor and is in the service of the Torrent Hose Co., of Ithaca, N. Y. The Neustadt Automobile Supply Co., of St. Louis, Mo., by whom the machine was built, states that it is the first gasoline hose wagon to be constructed in the United States.

The car is propelled by a double-opposed cylinder horizontal motor of 22-25-horsepower, driving through side chains to the rear wheels mounted on a solid rear axle. The machine carries 2,000 pounds of hose and five men, including the driver. The body is of sheet steel with nickel plated brass railings; the floor is removable to give access to the engine. The wheels are fitted with three-inch solid internal wire tires.

The manufacturers state that an appropriation has been asked for with a view to introducing motor hose wagons throughout the St. Louis Fire Department in place of the present horse-drawn hose wagons.

Olds Piano Box Runabout.

The piano-box style of body is familiar to automobilists on account of its extensive use in small electric cars, and by many this type is preferred to other styles. The Olds Motor Works, of Lansing, Mich., has brought out for 1906 a gasoline runabout with a straight-line piano-box body to meet the demand for a small car built on these lines. The car, which is sold at the same price as the well-known curved dash Oldsmobile runabout, has also the same type of 7-horsepower single cylinder motor, lever steering, planetary transmission, starting from the seat and other features. As will be seen by the accompanying illustration, there is an unmistakable suggestion of "Oldsmobile" in the machine, notwithstanding the new body. Wood artillery wheels and large tires are fitted, giving the car a substantial appearance. The well-known Oldsmobile side springs are retained in this model.

GASOLINE HOSE WAGON BUILT FOR ITHACA FIRE DEPARTMENT BY NEUSTADT COMPANY.

OLDSMOBILE 7-HORSEPOWER RUNABOUT WITH PIANO BOX BODY AND STRAIGHT DASH.

Reo 16-H. P. Coupe.

Gasoline cars with enclosed bodies for use in winter or stormy weather are becoming exceedingly popular, especially in the metropolitan district, and no weather is too unpleasant for their use. One of the latest cars of this type is the coupé manufactured by the Reo Motor Car Company, of Lansing, Mich; the accompanying engraving shows the arrangement of the car.

The chassis is the same as that of the Reo touring car. The double-opposed cylinder motor, rated at 16 horsepower, is hung under the body and drives the live rear axle through a two-speed planetary transmission and heavy roller chain; a multiple disc clutch is used. The motor is similar to that of the runabout, except that two cylinders are used instead of one; the bore is 4 3-4 inches and the stroke 6 inches; cylinders, heads, water jackets and valve chambers are cast integral and the valves are mechanically operated.

Pressed channel steel is used for the framing; the body is suspended on full elliptic springs in the rear and half elliptic in front. The axles are tubular, the front axle being straight; the wheels run on roller bearings and are 30 inches in diameter, with 3 1-2-inch tires. The wheelbase is 90 inches and the tread 55 inches. Steering gear is of the worm and segment type, with the working parts enclosed in a dustproof casing. Gasoline capacity, 10 gallons, sufficient for 125 to 200 miles, according to road conditions; the capacity of the water system is 4 gallons. The radiator, circulating system, ignition, planetary transmission and other parts are similar to the corresponding parts

REO 16-HORSEPOWER CHASSIS FITTED WITH COUPE BODY, FOR USE AS A WINTER CAR.

in the runabout, though strength has, of course, been added where required. Two brakes are fitted, the emergency brakes being on the rear hubs.

The enclosed body is intended to carry two passengers, and is fitted with many conveniences. The glass windows in the front, the sides and the rear can be let down in fine weather. A speaking tube provides for communication between the passengers and the driver.

The chassis being the standard touring car chassis, the coupé body can be removed and replaced by a regular touring body if desired. The weight of the car, with coupé, is 1,800 pounds; with touring body, 1,600 pounds.

Hartford Tire Improvements.

HARTFORD, Dec. 18.—A number of radical changes in the tires for next season are announced by the Hartford Rubber Works Company. Probably the most important is the adaptation of the well-known Dunlop rim with removable retaining rings to the Hartford clincher and all other standard makes of clincher tires. This is accomplished by making the expanding side ring straight on one side and grooved on the other, so that by reversing it the groove will receive the bead of tires of the G & J section.

The Hartford Dunlop tires will be without lugs, for which will be substituted an endless floating metal band inserted between the tube and the edges of the tire. When the tire is inflated, this band presses the edges of the shoe down upon the wheel rim and holds the tire firmly against creeping. The use of these bands simplifies the removal and replacement of a shoe, as there are no lugs to be inserted and individually screwed up. The floating ring is simply put inside the shoe and slipped onto the rim with the tire. Should it become necessary to drive with a tire flat, the band rests lightly on the inner edges of the tire and effectually prevents creeping, as has been proved in factory tests with demonstration cars.

An additional advantage of the metal band is that it excludes dampness from the inside of the tire.

As for the tires themselves, both the Hartford clincher and Hartford Dunlop will be of the open-cure, wrapped tread variety, but instead of vulcanizing the parts separately and then giving them one final cure, the whole tire will be vulcanized at one operation, which is far preferable to submitting the rubber and canvas to two or three separate vulcanizations.

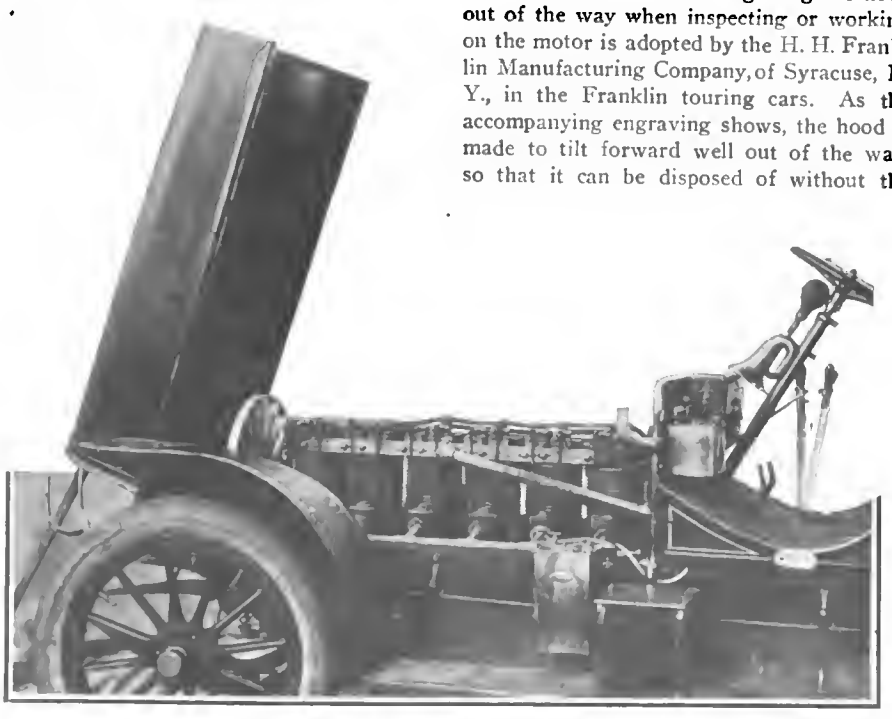
In addition to this the tires are made and cured in the same shape the tire assumes when in service, thus relieving the tension on the fabric and offsetting any tendency it may have to split.

The special Sea Island cotton fabric incorporated in the tire will be considerably stronger than that used in other years without impairing the resiliency of the tire.

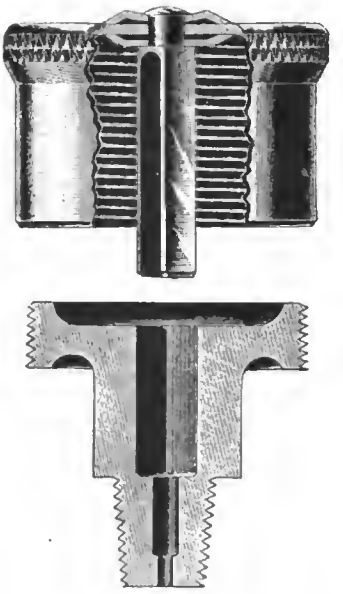
A strip of pure Para rubber is placed next the outer layer of fabric, and before the rubber cover proper is applied a strip of fabric is incorporated which prevents what is known as shuffling or blistering, a common trouble with automobile tires, and in addition also aids in resisting puncture. The cover or wearing portion of the tire which comes in contact with the road is made of an especially tough compound to resist the wear and tear to which it is subjected.

Franklin Tilting Hood.

A convenient method of getting the hood out of the way when inspecting or working on the motor is adopted by the H. H. Franklin Manufacturing Company, of Syracuse, N. Y., in the Franklin touring cars. As the accompanying engraving shows, the hood is made to tilt forward well out of the way, so that it can be disposed of without the difficulty that sometimes accompanies the handling of a hood in which the sides are separately hinged. The Franklin hood may be removed entirely if desired. The car in the illustration is the new 30-horsepower, six-cylinder Franklin touring car. A hood of the same type is used on the 20-horsepower touring car, this machine having the motor set in the same position.



FRONT OF FRANKLIN SIX-CYLINDER CAR, SHOWING TILTING HOOD HINGED AT FRONT.



ERIE LOCK-CAP GREASE CUP

Improved Grease Cup.

The special feature of the grease cup illustrated herewith, and the feature that appeals especially to automobilists, is the means provided for preventing the screw top, by which the grease is compressed and forced to the bearing, from working up or down under the influence of vibration. The cup is manufactured by the Erie Stamping & Mfg. Co., of Erie, Pa.

A grooved square pin is made an easy sliding fit in a square hole in the bottom part of the cup, the groove being of the right size to allow the grease to pass through. The top of the square pin is turned off round and passes through the top of the screw cover of the cup; the top of the cover is closely held between two spring washers, as the illustration shows, and the pin is riveted over. When the cover is screwed down it turns on the pin, as the pin cannot turn, and the spring washers set up sufficient friction to make it turn hard—hard enough so that it will not be affected by the vibration of the vehicle, but freely enough so that it can readily be screwed down by hand.

This cup is made in a number of styles, and can be had in polished brass or nickel finish.

With the increase in the use of aluminum in the arts, the price shows an upward tendency. According to an authority, it is quoted this year at 82 cents per kilogram (2.2 pounds), whereas the price in 1902 was only 48 cents.

Letter Box

Licenses and Interstate Commerce.

Editor THE AUTOMOBILE:

[295.]—I have been very much interested in the Unwin case, but there seems to be one point which has not been brought out as yet, which might be illustrated as follows:

Suppose a manufacturer of cars in New York City receives an order from Philadelphia, and upon completion of the car, sends it overland for delivery. Upon passing through the state of New Jersey, his representative is arrested and the transportation of the car is held up until he has paid the state of New Jersey a certain sum of money; is this interfering with the interstate commerce?

G. J. LOOMIS.

Erie, Pa.

The Unwin case, to which reference is made, is a case created by the National Association of Automobile Manufacturers for the purpose of testing the constitutionality of the New Jersey automobile licensing law. For this purpose Harry Unwin submitted to arrest for driving a car without having obtained a license under the New Jersey law.

American Versus Foreign Cars.

Editor THE AUTOMOBILE:

[296.]—In a recent issue a New York paper ran on its editorial page an interview with Charles M. Schwab, former president of the United States Steel Corporation, in which, under the heading, "America's Industrial Problem," Mr. Schwab was quoted as saying:

"Yet it is notorious that American automobiles have not ranked as high as European automobiles. The truth is that we have hitherto made no genuine effort to produce forged steel working parts of automobiles of the highest quality. That is one of the reasons why our automobiles have not ranked as high as those of foreign make."

As this seems to be the general opinion, naturally fostered and encouraged by foreign competitors, it seems time that the American, proud of home industry, should be informed of the actual facts, which, upon investigation, will convince the most skeptical that quality of material has been the smallest influence.

It is true that in the transmission parts, and in the axles and possibly in one or two of the minor details the foreign manufacturers have had, in the past, a slight advantage. It has enabled them to use smaller shafts and gears for the transmission, but that does not matter. American roads demand heavier mechanism and we have used the larger shafts and gears at an expense of some eight or ten pounds which has been more than saved elsewhere.

There are several reasons why American automobiles have not, in the past, ranked as high as those of foreign makes, quality of steel being the smallest.

The leading reason is due to the fact that the American manufacturer spent many years in experimenting before reaching his final conclusions. In the earlier stages of the industry he used electricity as his motive power. Therefore for one or two years, steam was the popular power. After that he switched off to horizontal gas engines.

In the meantime, the foreign manufacturer had adopted the style of vertical motors in front, now practically the universal design, and this gave to them the advantage of a start of several years on the American manufacturer. The chief advantage of the vertical design is its minimum of weight and its ready accessibility for examination and repairs, in those days a most important advantage.

Another great reason why the foreign cars were considered superior is that the makers of them first saw the necessity of and introduced high power. This was not so much for the purpose of gaining excessive speed as it was for the negotiating of hills and bad roads without over-taxing the engine and other mechanism. Higher power was not only contributory to the pleasure of the owner, but also eliminated, to a large extent, the expense of repairs and delays on the road.

During this transition period, the American maker was using barely enough power to send his car over ordinary roads, and if the valves were foul or any slight derangements occurred his car could not climb hills or overcome bad roads. Under the same conditions the foreign cars would continue to operate at fair speed. This has all been remedied now. The American manufacturers are using greater power and are more than holding their own under all conditions of travel to which their cars are subjected.

Still another reason for the belief that the foreign cars are superior to those of American make is the high prices asked for them. But these high prices are due entirely to the fact that a number of middlemen share the profits and not because of any greater intrinsic value or better workmanship.

To sum it all up the foreign cars have been sold to a certain class of eastern buyers mainly because they alone catered to the demand for high power, roominess and comfort, and because they were a year ahead of us in perfecting their permanent designs. Design, speed, power and size have been the causes—not an imaginary lower grade of materials or workmanship.

This is proven in our case. Last year we made and sold 400 high-powered and roomy cars. As a consequence, this year it has become necessary to erect a new factory, with a capacity of 1,000 50-horsepower machines, which will seat seven people and make a mile a minute.

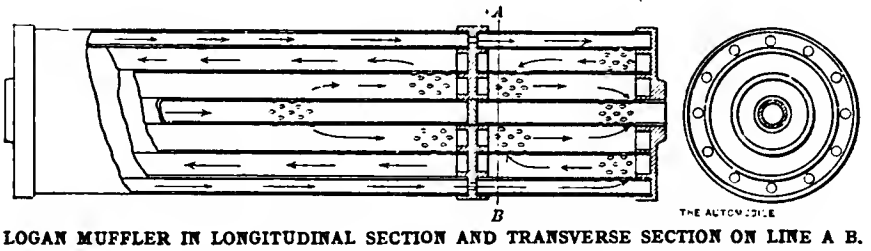
The time for the American manufacturer to supplant his foreign rival on his home grounds has come.

E. R. THOMAS,
President of the E. R. Thomas Motor Company.

Buffalo, N. Y.

Logan Muffler.

The muffler shown in the accompanying line engraving is the invention of B. A. Gramm, vice-president and general manager of the Logan Construction Co., of Chillicothe, Ohio, and is used on all Logan cars. The manufacturers state that the muffler permits the exhaust gases to escape in such a way that the sound can only be heard by getting close to the muffler; while the back pressure is said to be inconsiderable.



LOGAN MUFFLER IN LONGITUDINAL SECTION AND TRANSVERSE SECTION ON LINE A B.

The illustration shows the device so clearly that little explanation is necessary. The cylindrical shell is divided transversely into two chambers by a circular plate; the chambers are of unequal size, that at the end where the gases enter occupying about two-thirds of the length of the muffler. Communication between the two chambers is by holes near the outer edge of the plate, in the outside shell. The gases enter through the central pipe and pass into the next chamber through holes drilled in the pipe, and pass from chamber to chamber, each time being forced to travel the length of one chamber before escaping into the next. Arriving in the outer chamber, the gases pass through the holes in the plate into the outer chamber of the small section of the muffler. Here the gases commence to travel toward the centre, going from end to end of the chamber as at first, until reaching the central pipe, which opens into the air. The arrows show the direction of travel and can easily be followed.

THE AUTOMOBILE

VOL. XIII. No. 25

Published every Thursday by

THE CLASS JOURNAL CO.,

Flatiron Building, Madison Square,

NEW YORK CITY.

Cable Address - - - - Autoland, New York
Long Distance Telephone - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2.00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 5 o'clock p. m. Monday for the issue of Thursday following.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies printed in 1904, - - - -	639,300
" " This Issue, - - -	14,000
" " Since Jan. 1, - - -	716,000

Types at Foreign and American Shows. Early reports from the great Paris automobile show comment on the remarkable similarity in broad design, though not necessarily in detail, of the cars on exhibition, and the revival of the small car, familiarly known here as the runabout. For several seasons now unification of design has been a marked feature of the French exposition, and certainly the conditions surrounding the manufacture and use of cars in France have been favorable to the evolution of a type car. There is a closer relationship between the makers of cars in France, where the industry is largely localized, and all of it within the confines of a country of comparatively small size. In the United States the industry is more widely scattered, and the isolation of many plants of importance naturally produces a greater independence of effort. Then in the use of machines the conditions as to climate and roads in France and the adjacent European countries are not very dissimilar, and a type that is satisfactory in one place is likely to be equally acceptable in another. Here, on the contrary, there are enormous differences of conditions of use, in roads, and to a greater extent in climate, all of which to greater or less degree influence design and production. The spirit which is usually referred to abroad as "Yankee ingenuity" has also a very marked influence in individualizing native design.

Yet, with all these influences at work, there is an apparent co-ordination of effort in American design, which, however, finds expression in distinct types, each represented by a group of machines with many characteristics in common. There is the touring car proper, for want of a better designation, in which the foreign model is reproduced; vertical motor in front, sliding gear transmission and propeller shaft or chain drive. Then there is the class of lighter machines of more distinctly American type, usually with horizontal motor, planetary transmission and chain drive. There is also the distinctively American production, the air-cooled car, which, in skilled hands, has been developed to an extraordinarily high degree of perfection. And now—a later development, in the wider sense of the word—comes the car with two-cycle motor, which, especially in hilly country—of which there is an abundance on this side of the Atlantic—seems likely to establish another American type of machine. And in no other country has the steam car been developed as highly in both the touring and runabout classes as in America.

While in dimensions and general artistic ensemble the coming American shows may not class with the great Paris Salon, yet in real engineering and popular interest they will not be in any way inferior, and will certainly show a much greater freedom from the spirit of imitation.

✷

Development of Planetary Transmissions. Planetary transmission gearing for gasoline pleasure automobiles, especially of the lighter types, has been developed by American manufacturers as an almost essential part of the equipment of the American automobile, and in its modern form the planetary transmission possesses peculiar advantages. The ease with which it is controlled renders it particularly suited to automobiles operated by inexperienced persons, while the fact that the drive is direct on the high speed, which is the speed used for all ordinary running, is an important factor in the efficiency of the machine.

While the utilities of the planetary gear for light cars are generally admitted, its suitability for heavy commercial work and continuous hard low-gear work is not so generally conceded by automobile manufacturers. It is therefore interesting to observe that a number of American manufacturers of gasoline commercial cars having carrying capacities of from three tons downward, are regularly equipping their machines with planetary transmission gears of heavy and special design. The fact that professional chauffeurs and experienced men cannot always be secured to operate commercial cars has doubtless had great weight with manufacturers in the choice of a transmission; in fact, one manufacturer of a two-ton gasoline truck states that this fact alone brought his firm to the use of planetary gears, and a special gear was designed for the work. Practical tests proved that the car could handle, without showing signs of weakness, overloads of fifty per cent. with the low gear in continuous use. On one occasion a run was made over twenty miles of roads so heavy with mud that the low gear was used exclusively, and at the end of the twenty miles the truck returned by the same route, still using the low gear; a thirty per cent. overload was handled in both directions. Subsequently the car was run several hundred miles in regular service, after which the transmission gear was taken apart and examined, and found to be in excellent condition, showing no abnormal wear.

Like many other devices that were at first so crude that their merits were hidden among faults, the planetary transmission, a device of American origin, has been improved and refined until the modern form is far more efficient, serviceable and reliable than the first models. It is the constant weeding out of imperfections, the unceasing effort to combine the greatest number of desirable features with the fewest disadvantages, and a refusal to acknowledge that any evil is a necessary evil, that tell in the long run, and save many a good mechanical idea from oblivion.

✷

Road Racing on Private Ground. Automobile speedways have long been the dream of speed-loving automobilists, and many have been planned in the vicinity of New York City. Hitherto none of these plans has been realized; but within the past few months a scheme has been worked out that appears to possess many of the features necessary to a successful solution of the problem, and which seems to be an amplification of a plan, described in THE AUTOMOBILE in the summer of 1904, to build a straightaway track from Floral Park to Hicksville, a distance of ten or twelve miles, part of the property involved being the same as is included in the new plans.

The idea is to build a thirty-mile speedway of approximately circular form on Long Island between Garden City and Farmingdale, the property involved being chiefly on the Stewart estate. The plans include, in addition to a fifty-foot dustless roadway with the necessary bridges, tunnels and inclosing fences, a grandstand where races may be started and finished, and first-class garages. The plan is said to be looked upon with favor by Long Islanders residing in the neighborhood of the proposed speedway, including the officials of Nassau County, in which the property lies. Robert Lee Morrell, president of the American Automobile Association and chairman of the Vanderbilt cup commission, is quoted in favor of the plan and to have expressed the belief that it will get beyond the paper stage. Engineers have already been over the ground and have made

estimates on the cost of road and other work, while the owners of the property involved have, it is reported, consented to grant a right of way at very reasonable figures.

AUTOMOBILE ENGINEERS' DINNER.

The first formal meeting of the Society of Automobile Engineers will be held on January 16, 1906, at the New Grand Hotel, New York, after an informal dinner. The dinner is set for 6 o'clock, and for half an hour previous the guests will occupy themselves in becoming acquainted with one another. At 8 o'clock the meeting will convene. Papers will be read on the following subjects: Materials for Automobile Construction; Design and Construction of Carbureters; the Six-Cylinder Motor. The reading of the papers will be followed by a discussion by the members, after which a brief business meeting will be held.

There are more than fifty automobile engineers already on the membership list; the objects of the association are purely technical and educational. The date has been set during show week, this being a very convenient time for those interested in such matters; it is not unlikely that this dinner will be only the first of other meetings during show week.

Members and their friends who desire to obtain tickets for the dinner may do so by applying to the secretary of the society, E. T. Birdsall, 136 West Thirty-eighth street, or to the chairman of the dinner committee, H. M. Swetland, Flatiron Building, New York. The dinner is to cost $4 a plate.

VERMONT GRANGE "RESOLUTES."

MONTPELIER, VT., Dec. 16.—At the final session of the thirty-fourth annual meeting of the Vermont State Grange, in this city last Thursday, the automobile question was treated in the following words:

"*Resolved*, That the automobile question greatly concerns the interests of our rural communities. Accidents of the most shocking nature have not been uncommon, and in many sections travel has been reduced to the driving absolutely necessary for the transaction of business, depriving pleasure driving for fear of accidents. That autoists have equal rights we do not question; but the Grange should stand together in the enactment and enforcement of wise laws, with sufficient penalties attached for their violation, which will cause less reckless driving on our streets."

A telegraphic report received from Flagstaff, Arizona, December 19, states that Percy F. Megargel and his companion, David F. Fassett, are lost in the snow in the mountains west of Flagstaff, and relief expeditions with the necessary supplies have been sent to search for them. The tourists left Williams for Flagstaff on Friday, December 15, and up to the time of the despatch had not been heard from.

Pennsylvania-Philadelphia License Conflict.

PHILADELPHIA, Dec. 18.—Common Pleas Court No. 4, in the City Hall, was crowded to the doors last Thursday, when the first round of the legal battle between the Automobile Club of Philadelphia and the city authorities was fought. At the conclusion of the day's proceedings a full bench, consisting of Judges Willson, Audenried and Carr, reserved its decision, although, in the opinion of the crowd, the automobilists' counsel won the argument.

The point at issue was as to whether the learned judges would grant a temporary injunction restraining the city of Philadelphia, the Mayor and the Director of Public Safety, on and after January 1, 1906, from continuing to enforce the local ordinance governing the regulation of automobiles, on the ground that that ordinance was diametrically opposed to the law passed by the state legislature last April, and which is to go in effect on the date mentioned. The city and state each claims the right to issue automobile licenses.

Ira J. Williams, Esq., appeared for the automobilists, and after pointing out the illegality and unfairness of compelling his clients to pay two taxes—one to the city, the other to the state—averred that the Act of Assembly of 1905 annulled the ordinance of Councils of 1902, with its requirement that licenses and tags must be obtained from the city. He called the attention of the court to that section of the new state law which says that "not more than one state license number shall be carried upon the front and back of said vehicle while operated or used on any of the public streets or public highways, and a license number obtained in any other place or state shall be removed from said vehicle while the vehicle is being used within this commonwealth."

The obvious intent of this section, Mr. Williams claimed, was to create a uniform system of automobile licensing throughout the state and to do away with the present multiplicity of licenses and tags. The contention of the city, he said, is that local licensing should be continued; and in the case of a touring party traversing various cities and towns of the commonwealth, each with its local ordinance governing the operations of automobiles, the hardships and annoyances which such ruling would impose upon his clients must be apparent.

"If the ordinance of Councils of 1902 is to continue in force after January 1 next," said Mr. Williams, "it will be an assumption by the city of what is clearly a prerogative of the state. Under the new law an automobile may travel the length of the state with but one license number displayed—that issued by the commonwealth—and if any local government apprehend an automobilist for failing to exhibit its particular license number it would devolve upon that local government to show its authority for compelling display of number.

Assistant City Solicitor Alcorn, acting as spokesman for the city's counsel, opened with the statement that the new law had nothing whatever to do with the ordinance of Councils of 1902. "That ordinance," he said, "was not nullified by the new law, and the city has a perfect right to continue to enforce it. The right of the city to regulate the running of vehicles upon its streets existed decades before the Act of 1905 was thought of. That act is not a prohibitory measure as to automobile licenses, but simply gives permission for the running of motor vehicles under a state license; and this permission does not deprive the city of the right to enforce its ordinance relative to similar licenses. As several acts of assembly specifically authorize councils to provide for the proper regulation of vehicles, there is no doubt that the city has full power to pass the ordinance of 1902."

"The Act of 1905," continued Mr. Alcorn, "does not supersede or repeal the earlier ordinances within the limits of the city of Philadelphia. The inquiry remains whether those particular sections of the ordinance under which a license fee is required to be paid and a license tag to be shown are in such necessary conflict with a somewhat similar provision of the new state law that they must be regarded as nullified thereby. It is reasonably clear that the terms of Section 4 of the Act do not of themselves apply to license tags required by the municipal regulation of cities within the state."

Mr. Alcorn went on to say that there was nothing in the restriction that "not more than one state license number shall be carried upon the front and back of the vehicle," etc., to show that other than license tags furnished by foreign states are prohibited, apart from the use of the word "place," which was evidently used in a substituting sense for the purpose of extending the meaning of the word "state" so as to embrace other sections outside the commonwealth which are not states—the territories, the District of Columbia and foreign countries, for example.

"There is thus," he concluded, "no conflict between this section of the new law and those portions of the ordinance of 1902 which make it obligatory to obtain a license within the city of Philadelphia and to display the license number. To attach any other meaning to these provisions of Section 4 of the Act of 1905 would be to interpret them most narrowly and in such a sense as conflicts absolutely with the context and meaning of the section as a whole. The purpose nowhere appears in the act to prohibit the display of more than one number, and that purpose could not be imported into it by interpretation."

Before adjourning the court announced that its decision would be announced in ample time to protect the interests of all the parties concerned.

The prospect of being mulcted of its license fees for the coming year has not deterred the city from going ahead with its preparations to issue them as usual. The tags and the necessary printing have been ordered, despite the fact that they may be left on the hands of the Bureau of Boiler Inspection.

Meanwhile, local license brokers and notaries are preparing to make a good thing out of the business of filling out applications for the state licenses, several thousand of which have been sent down from Harrisburg. The Automobile Club of Philadelphia will save its members this extra expense by having Secretary Gundlfinger receive applications from 10 A. M. to 8 P. M. at the clubhouse on Wednesday next. The unfortunate "unattached" will be compelled to go to the brokers and notaries, who have been supplied with the necessary blanks and empowered to receive the license payments and the fees, which will range from 50 cents to $1, according to the rapacity of the broker.

MORRELL BILL'S CHANCES.

Measure Introduced in Congress Has Small Chance of Passing.

WASHINGTON, D. C., Dec. 18.—The bill recently introduced in Congress by Representative Morrell, of Pennsylvania, regulating the operation of automobiles between the states, is roundly denounced in many quarters. Interviews with a number of prominent representatives regarding the chances of the bill ever being reported from the Committee on Interstate and Foreign Commerce, to which it was referred, show that the general opinion is that the measure is doomed to die a natural death in committee. The chairman of the committee is William P. Hepburn, who comes from an agricultural district in Iowa.

Despite its pernicious features of class legislation, the Morrell bill is sure to find favor in the eyes of a few bucolic representatives, and it behooves automobilists in every section of the country to lose no time in manifesting their disapproval of the proposed law. The surest and quickest way of placing the bill in oblivion would be for individual automobilists and the automobile clubs throughout the country to flood Congress with protests and petitions against the enactment of a law that would deal a great and growing industry a body blow. No time should be lost in letting Congress know the sentiment existing against the Morrell bill.

BILL ALLOWS JAIL SENTENCE.

CHICAGO, Dec. 16.—Ex-Judge Hiram T. Gilbert, father of the municipal court bill, gave an address before the Young Men's Good Government Club this week, in which he explained how he thought automobilists who indulge in excessive speeding should be treated.

If the supreme court does not interfere, criminal automobilists may be sent to jail by the judge under the new court system without the difficulty that is experienced under the present system. The new municipal court measure empowers the judges to send a man to jail for thirty days upon finding him guilty, as provided in the ordinance regulating speed upon the public highways.

Judge Gilbert says fines will never stop speeding, and the only way to bring the scorchers down to a reasonable speed is to put them in jail while they think it over for about a month.

The automobilists of Chicago will strenuously oppose the new bill.

MAY INVADE STOCKYARDS.

Horse Pavilion May Be Leased for 1907 Chicago Auto Show.

CHICAGO, Dec. 16.—The automobile is pursuing the horse to his last retreat, and now threatens to invade the stockyards. Manager L. L. Fest, who has charge of the Chicago automobile show, is now negotiating with the management of the horse pavilion at the stockyards, with a view to holding the 1907 auto show at that place.

The horse pavilion is now the only available place large enough to accommodate the exhibitors at the automobile show, and if the ratio of increase keeps up, even that will not be large enough by next year.

The show next February will fill both the Coliseum and the First Regiment Armory, where the combined floor space is 112,762 feet, and exhibitors cannot now get as much space as they desire. The horse pavilion has about 75,000 square feet more than the combined space of the Coliseum and armory.

There will be nearly 250 manufacturers represented at the show next February, which is almost double that of last year. There will be 104 makes of cars exhibited as against 76 in 1905. The total number of exhibitors last year was 170.

MARCUS BROCK GOES TO A. L. A. M.

Announcement was made on Tuesday that Sales Manager Marcus I. Brock, of the Autocar Company, of Ardmore, Pa., had resigned his position with that company to accept a position as assistant manager of the Association of Licensed Automobile Manufacturers. Mr. Brock will assume his new office on January 20, relieving the general manager of some of the burdens that have increased with the growth of the association during the past two years. The A. L. A. M. is now departmentalized into the following: The Board of Managers, Executive Commitee, Patent and Legal Department, Agency Department, Traffic Department Handbook Department, Madison Square Show Department, the Mechanical Branch, the Technical and Testing and Metallurgic Department and the Association Patents Company.

ILLINOIS STATE ASSOCIATION.

More than 1,000 Members in Organization Seeking General Benefits.

SPRINGFIELD, ILL., Dec. 18.—The Springfield Automobile Club and the automobile clubs of Peoria, Bloomington, Decatur, Rockford, Austin and Chicago, will be welded into a state association, of which Sidney S. Gorham, of Chicago, is president and which has now more than 1,000 members.

Up to the present time the only effort of the club officers and directors has been to increase the membership so as to embrace a majority of the automobilists of Illinois, but it has been decided to begin a campaign in the interest of good roads and for a state automobile law providing for a uniform speed limit, for the state licensing of automobiles and numbering of the vehicles by the state instead of by the several cities.

During the last session of the Illinois legislature a bill was passed for a state licensing law, but it was vetoed by Governor Deneen. It is believed that a state organization will secure enough legislative supporters to put through another bill and bring argument and influence enough to bear upon the governor to enable him to see its merits.

As it now is, every city and village has its own speed laws and limits, and it is almost impossible for a tourist to keep from violating them unless he has studied them all. A universal speed law provided by the state would obviate this and many other troubles. It is also proposed to erect guide posts at crossroads all through the state and, in short, to conduct a general campaign in the interest of all members of the organization.

BUFFALO ASSOCIATION ELECTION.

BUFFALO, Dec. 18.—The annual meeting and dinner of the Buffalo Automobile Trade Association was held last evening in the rooms of the Automobile Club of Buffalo. The attendance was large and Vice-President J. A. Cramer presided. After the members had enjoyed an elaborate supper, the officers for the ensuing year were elected as follows:

President, J. A. Cramer; vice-president, W. C. Jaynes; secretary (re-elected), Dai H. Lewis; treasurer (re-elected), John J. Gibson; executive committee, P. W. Eigner, E. C. Bull and N. P. Baker, together with the officers ex-officio.

It was voted that the year's sessions had been the most successful and harmonious in the history of the organization.

WORCESTER CLUB'S NEW ROOMS.

WORCESTER, MASS., Dec. 18.—The new rooms of the Worcester Automobile Club, on the top floor of the block at 44 Front street, were opened last Thursday with an informal dinner, at which the Board of Governors sat. Many others dropped in during the afternoon and evening and expressed

admiration for the splendid appointments, the rooms now ranking with the best in New England.

The new rooms occupy the entire floor and have been tastefully decorated and furnished. The rooms consist of a parlor, dining-room, smoker and card room and kitchen. The club now has its own chef.

Although the membership was increased by thirty-seven week before last and the limit raised by fifty, there is already another waiting list of thirty. The membership committee will hold a special meeting this week to act upon the applications. On January 1 the yearly dues will be raised from $5 to $10 a year.

LONG ISLAND CLUB COMMITTEES.

The following appointments of new committees for 1906 are announced by the Board of Governors of the Long Island A. C. As members of some of these committees have not yet been selected, a complete list cannot be given yet.

Membership committee.—Frank G. Webb, chairman (reappointed); M. S. Allen and Leffert Lefferts.

Runs and tours.—A. R. Pardington, chairman; Dr. C. B. Parker and W. T. Wintringham.

Law and legislation.—Dr. William Payson Richards, chairman.

Technical.—Lewis T. Weiss, chairman; Herbert L. Towle and Alfred Mackay.

Good roads.—Augustus Post, chairman.

House.—Edwin Melvin, chairman.

Entertainment.—W. S. Pierson, chairman; Edwin Melvin and Louis H. Irwin.

Auditing.—J. H. Emmanuel, Jr., chairman.

Garage.—Z. Nelson Allen, chairman.

The demand for storage space by members of the club has been so great that the matter of adding one or two additional stories to the new club building is being considered. President Wilmarth says that the club will have a membership of 500 by May 1. The entertainment comittee promises to make things lively during the winter months. An exhibit and "talk" will be given on Friday, December 29, the Packard, Buick and another good car being shown. The clubhouse is being decorated by Mr. Melvin for the occasion and the Williams and Walker colored quartette will furnish entertainment for visitors after the various cars have been examined, and light refreshments will be served.

NEWS NOTES OF THE CLUBS.

NEW YORK.—At the special meeting of the Automobile Club of America, called for the evening of December 12, the proposal to raise the limit of membership from 700 to 1,000 was unanimously adopted.

WASHINGTON.—A series of Saturday night smokers has been inaugurated by the A. C. of Washington, and they are having the effect of greatly stimulating interest in the club. The membership is growing steadily, and it is confidently expected that before spring the club will be 200 strong. Members are highly pleased over their success in enlisting the aid of the superintendent of the street cleaning department in securing the prompt removal of broken glass from the streets. Special messengers will be sent out to collect the dangerous substance as soon as notification is received. Many a tire will thus be saved from damage.

NEW YORK.—The annual meeting of the New York Motor Club, held last Thursday night, was largely attended. The regular ticket was elected as follows: President, W. J. P. Moore; vice-president, H. M. Swetland; second vice-president, R. H. Johnson; secretary, A. B. Tucker; treasurer, F. J. Griffin.

NEW YORK.—The recently organized Motor Boat Club of America is trying to secure the clubhouse belonging to Columbia University Boat Club, to be used as headquarters of the club. The Ways and Means Committee has been authorized to go ahead and approximate the cost of purchasing the property and fitting it up properly.

A "FOUR-CYLINDER" LUNCHEON.

At a luncheon given to the managers of New York branches and agencies for companies manufacturing four-cylinder cars in America, by the Breslin Hotel Company, at the Breslin Hotel, on December 14, an interesting feature was a drawing for the privilege of exhibiting a 1906 model in the rotunda of the hotel during the week of the automobile shows in January. The Orient was the lucky car that won, the White steamer being second. It will be remembered that the White had the privilege last winter.

After the luncheon John Gerrie, automobile editor of the *Herald*, acted as toastmaster and there were a number of amusing speeches by those present.

An official report states that out of 250 motor cars registered in Moscow, Russia, 180 are Oldsmobiles.

FACTORY FOR BERLIET CARS.

American Locomotive Works Plant Where Copies of French Car Will Be Built.

PROVIDENCE, Dec. 18.—The factory of the American Locomotive Automobile Company in this city is nearly completed, and in a short time, it is expected, will be in readiness to begin the manufacturing of the Berliet car after the designs of the French car built in Lyons, France.

The new automobile factory is located on Kingsley avenue, adjoining the plant of the American Locomotive Company, which was formerly the Rhode Island Locomotive Company. The building is constructed of brick over a framework of steel. It measures 375 by 63 feet and is three stories in height. The machinery in the automobile factory will be operated by electric motors. the current being derived from powerful dynamos in the locomotive plant. The several departments will be operated in sections by a unit system of motors. The machine shop will be located on the third floor; assembling will be conducted on the second floor and the engines and cars will be tested on the ground floor. It is expected that about 200 hands will be employed.

The Berliet cars to be built are of 24, 40 and 60 horsepower. The plant will be able to turn out about 200 cars a year and work in the drafting-room has already been begun.

TIRE REPAIR PLANT IN NEW YORK.

An extensive tire repair plant is being installed in the building, soon to be occupied by the New York branch of the Goodyear Tire and Rubber Company, at the corner of Broadway and Sixty-fourth street; the branch will occupy the entire building, consisting of three stories and basement. The repair plant will be located in the basement, while the other floors will be used for offices, sales and stockrooms. The present quarters of the branch are at 253 West Forty-seventh street, New York, and it is expected that the new place will be ready for occupancy by January 1.

BUILDING OF AMERICAN LOCOMOTIVE WORKS IN PROVIDENCE FOR AUTO CONSTRUCTION.

The basement, where the repair department will be located, is divided into two parts. In one room tires will be cleaned and otherwise prepared for the actual repair work, which includes vulcanizing, while in the second room will be installed the vulcanizers and the heating apparatus necessary for their operation. In this way the vulcanizing-room will be kept clean and free from dust and dirt which might effect the work. The plant will be so complete that a new tire can be built up and vulcanized, though, of course, there will be no facilities for working up the raw materials. Thus, any tire that is susceptible of being repaired can be handled under the best conditions.

The first floor will be used for offices and as a sales and showroom; the large area of glass insures an abundance of light during the day, while numerous electric clusters will be used at night. The second floor will be used as a salesrom for tires, and stock tires, pneumatic and solid, for automobiles and horse-drawn vehicles will be carried on the third floor. The second floor is almost as well lighted as the first, while the third, which was originally built for the use of a photographer, has an enormous glass skylight.

The building is being refitted for the Goodyear branch, and, among other things, will have an electric elevator. It is expected that the first of January will see the new occupants installed and ready for business

MAXWELL BRANCH PLANT.

Large Assembling Factory Opened in Pawtucket—Another in Illinois.

PROVIDENCE, R. I., Dec. 18.—The Maxwell-Briscoe Motor Company began active operations in Pawtucket, near this city, early last week, and it is expected that within a short time will be turning out finished cars. The company, which has a large automobile establishment at Tarrytown, N. Y., is operating as a branch in Pawtucket a large factory formerly leased by the Hope Thread Mill. The building has been thoroughly refitted with new machinery.

The Maxwell company has been placing large orders with the Brown & Sharp Manufacturing Company, of Providence, for transmission gears, and this made it desirable for the company to have an assembling shop in the immediate vicinity of the establishment where the parts are made. It is understood that the company has a similar branch in Illinois, not far from Chicago.

The plant here comprises about 40,000 square feet of floor space, in a four-story frame building.

The concern will employ about 250 hands and the heads of departments will be brought from Tarrytown.

In addition to its two-cylinder touring cars and runabouts, the Maxwell-Briscoe Company is testing a new four-cylinder touring car of 35-horsepower, which will be placed on the market very soon.

News and Trade Miscellany.

On the large plot of ground which the Packard Motor Car Company recently acquired adjoining its present site in Detroit, Mich., the company is erecting a two-story building, 60 by 175 feet, to be used as an addition to the motor and chassis erecting departments. The new building gives the Packard people additional floor space of 21,000 square feet.

Richard T. Bacon, Jr., who has been manager of the Chicago branch of the Studebaker Automobile Company during the past year, has resigned that position and will be associated with George Crane, manager of the Knox Automobile Company branch for Chicago and the West. Mr. Bacon will devote his time to the pleasure cars, while Mr. Crane will look after the commercial end of the business.

The first 1906 Acme car is expected to arrive at the Chicago branch in a few days, Secretary Arthur Devlin, who was at the factory in Reading last week, having written information to that effect. The Acme is arousing considerable local interest because the factory is owned by Chicago capitalists.

Walter L. Githens, who for the past three years has devoted his time solely to the Oldsmobile, in Chicago, will next year add the Stearns to his line. Mr. Githens has just returned from the Stearns factory, in Cleveland, where he completed arrangements for handling the 1906 product.

The Queen will be the exclusive line handled next year by H. P. Branstetter, of Chicago, who will be located at 1337 Michigan avenue.

R. P. Rice, who has been factory representative of the Ford Motor Car Company, is now acting as salesman at the Chicago Ford branch.

T. J. Fisher and George Soules were in Philadelphia last week, having completed their 14,000th mile before reaching the Quaker City. They are making a round of the Pope-Toledo agencies, demonstrating the qualities of the 1906 car. Theirs was the first car to climb City Line Hill on high gear with five passengers aboard.

The Rands Manufacturing Company, Detroit, Mich., makers of auto tops, which was formerly the Wheeler Manufacturing Company, has removed from Baltimore avenue to the northwest corner of Beaubien and Macomb streets, occupying a two-story and basement brick building, to which another story will be added at once.

Charles Van Horne, formerly with the Buick Motor Company, is now assistant manager of the Jackson Automobile Company, Jackson, Mich.

The Burtt Manufacturing Company, Kalamazoo, Mich., is erecting a large addition to its factory on Edward street.

Blood Bros. Automobile Company, Kalamazoo, Mich., is about to add additional equipment to its plant for the manufacture of automobile parts.

A building with a frontage of 150 feet on Woodward avenue and 161 feet on Alexandria avenue, Detroit, is now in course of erection, and, when completed, will be occupied by the local agencies of the Packard, Peerless, Buick, Welch and Soules cars. The building will be one story in height, and will probably be completed by February 1, 1906.

The United Shoe Machinery Company, of Boston, Mass., has adopted the motor truck as a means of transporting its product, having recently purchased a 1 1-2-ton Packard truck.

A case in the court at Norristown, Pa., last Monday, against John B. Stetson, Jr., whose automobile, it is claimed, frightened the horses of Mrs. George and Addison Yerkes, resulting in a runaway and the injury of the occupants of the carriage, was non-suited because Mr. Stetson proved that he was 2,000 miles away, in Arizona, at the time the accident occurred. It was his younger brother, Henry, who was in the automobile at the time, and as the accident occurred in 1903, the statute of limitations will prevent the plaintiffs from taking further action.

A recent purchaser of a Knox air-cooled truck is the Chicago dry goods firm of Marshall Field & Co.

The Welch, Estberg Company, of Milwaukee, Wis., recently incorporated with a capital of $50,000, will, early in the spring, occupy a new three-story building, now being erected at the corner of Grand avenue and Seventh street. An up-to-date garage will be a feature of the establishment, and, besides carrying a large line of automobiles, a complete stock of supplies will be kept constantly on hand.

Recent purchasers of foreign cars through Smith & Mabley include: George Ehret, Jr., Thomas Dolan, G. Piel, A. B. Proal, F. M. Warburg, Charles I. Scott, purchasers of Mercedes machines; W. B. James, M.D., Otto Young, of Chicago, Mrs. C. D. MacDougall, C. de Heredia and George B. Gardiner have taken Panhard cars.

T. H. Jacobs, formerly the Grand Rapids agent for Rambler cars, has become connected with Thomas B. Jeffery & Co.

The Anderson & Sons Co., of Detroit, Mich., tool manufacturers, has contracted for so large a supply of crankshafts for automobiles to be delivered next year that the concern has found it necessary to inaugurate a system of working two shifts of employees twenty-two hours a day. With the double shifts in operation, about a hundred skilled men will be employed, and the company hopes in this way to be able to keep up with its orders.

W. W. Burke, who has been manager of the Electric Vehicle Company's branch in Boston, has been transferred to the management of the New York branch.

Henry Hill and George E. Risley, of the Electric Vehicle Company, Hartford, who lately returned from a hunting trip in Maine, played the part of hosts at a moose dinner given recently to their fellow workers in the Hartford plant. The menu card was unique, and characteristic of both hunting and automobiling, showing a moose rigged up with brake, lamps, horn, etc., and going at top speed.

C. A. Benjamin, of the H. H. Franklin Manufacturing Company, of Syracuse, S. T. Davis, president of the Locomobile Company, of Bridgeport, and John S. Gray, president of the Ford Motor Company, of Detroit, were among the prominent trade visitors to Philadelphia last week.

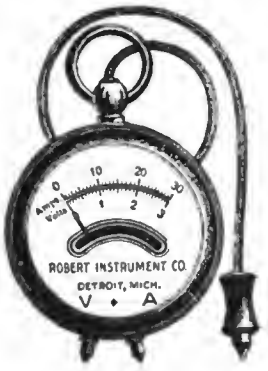
The Philadelphia uptown garage of Thomas B. Jeffery & Co., on Twenty-seventh street, above Girard avenue, is being enlarged to take care of its rapidly growing storage and repair business.

M. E. Brigham, president of the Eastern Automobile Company, of Philadelphia, which represents the Stevens-Duryea and Peerless in that territory, is in Europe, for the purpose of taking in the big automobile shows. He is expected to return about February 1.

INFORMATION FOR BUYERS.

GOODRICH TIRE AND RIM.—A new "quick detachable" tire and rim, similar in construction to the regular Goodrich clincher, but designed to be easily removed and applied without the aid of tools, has just been perfected and placed in the market by the B. F. Goodrich Co., of Akron, O. The rim for the new tire has a detachable ring provided with hooked ends that engage the rim proper through a slot. The hooked ends can be released quickly, freeing the ring from the rim and leaving practically a flat surface for the tire to slip over. In the new tire there is a flap to protect the inner tube and guard it against pinching. The use of lugs or clips is eliminated and creeping or becoming detached, either when inflated or deflated, is prevented. No bolts, screws or turnbuckles of any sort are employed. The rim has the advantage of being of standard clincher type adaptable to all standard sizes of wheels.

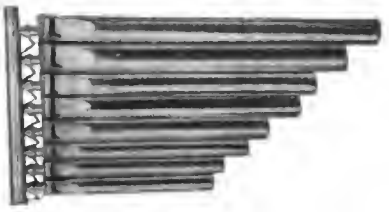
ROBERT VOLT AMMETER.—An instrument by which either the voltage or the amperage of a battery may be ascertained is illustrated herewith and is manufactured by the Robert Instrument Company, of 56 Shelby street, Detroit, Mich., under the name of the Robert volt-ammeter. As the illustration shows, the face of the instrument carries a single pointer and a double scale, the upper part of which is graduated to read in amperes, while the lower part reads in volts. Projecting from the bottom of the case are two steel points or spurs, and over them the letters V and A (volts and amperes). From the top of the case extends a flexible cable with a contact point at its end. When it is desired to test the voltage of a battery the steel spur marked V is held against the carbon or positive battery connection and the terminal of the cable is held against the negative terminal of the battery. when the correct voltage may be read from the voltage scale. By using the other spur, marked A, and reading from the amperage scale, the amperage of the battery may be determined, the one instrument serving both purposes. These instruments are made with various maximum limits for various uses, and separate volt meters and ammeters are also made. Each instrument comes in a leather case.



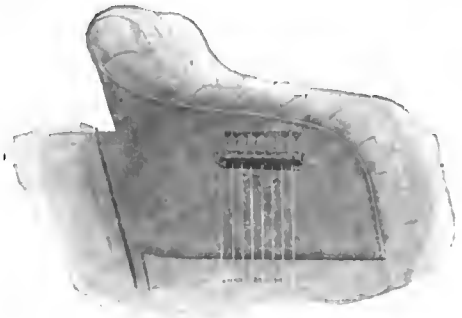
ROBERT VOLT-AMMETER.

NEVEROUT LAMPS.—In arriving at a decision in the purchase of a car, it is prudent to consider the nature of the equipment, such as carbureter, cooler, magneto, lamps, horn and tools. As the customer is, of course, charged for these things, he is entitled to equipment in keeping with the character and price of the car. If a manufacturer is building a high-grade car he will not risk injuring its reputation and his own by placing on it attachments that will prove faulty and unsatisfactory. Neverout Lamps, made by the Rose Mfg. Co., of Philadelphia, are one of the earmarks of good material, costing more than inferior lamps manufactured especially for the builders of cars, yet being cheaper in the end.

MUSICAL HORNS.—Two, three and four-chime Gabriel horns, which have had such a widespread popularity since their introduction at the automobile shows last winter as almost to amount to a fad, are now supplemented by an eight-chime horn lately invented and put on the market by the same patentees, the Gabriel Horn Mfg. Co., of Cleveland, O. This marks the first attempt to place anything strictly musical on the market. As the pipes are pitched to scale, any ordinary tune can be played upon them, a keyboard being attached to the side of the car where it can be reached easily and wires connected with valves in the horn. The Gabriel horn is connected by a pipe with the exhaust pipe back of the muffler, and a valve operated by a foot lever admits as much exhaust gas under pressure as the operator desires for blowing the chime. As the valve opens the pipe to the horn it closes the muffler exit. The horn is attached to either side of the car, usually just above the running board back of the front fender, with the pipes pointing forward; or it can be put under the car. The new eight-chime horn is, like its predecessors, made of brass tubing and headers, polished and lacquered to prevent tarnishing. It is a beautifully modulated chime and is superior to anything yet produced. This horn will be on exhibition at the Madison Square Garden and Sixty-ninth Regiment Armory shows in New York. The Gabriel horn is protected by U. S. patent 802,386, dated October 24, 1905, and applications for other patents are pending.



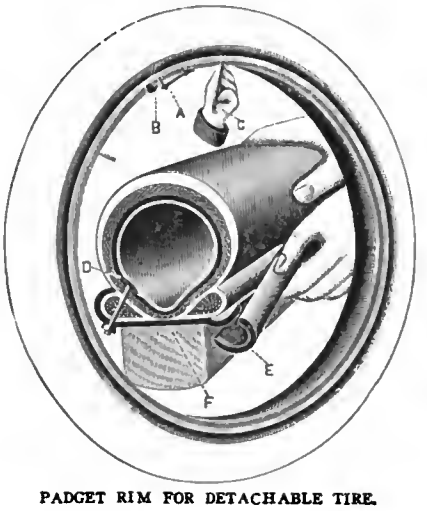
GABRIEL MUSICAL EIGHT-CHIME HORN.



KEYS AND WIRING FOR NEW GABRIEL MUSICAL EIGHT-CHIME HORN.

BALL TRANSMISSION GEAR.—A planetary transmission without internal gears is manufactured by the New York Gear Works, of 56 Greenpoint avenue, Brooklyn, N. Y., under the name of the Ball transmission. This gear gives two speeds forward and one reverse; the ratio on slow speed forward is one revolution of the gear sleeve to two and a half revolutions of the motorshaft, while on the high speed the gear runs solid and at the same speed as the motorshaft. The ratio of the reverse is one to six. The Ball transmission is made in four sizes: No. 1, to transmit 5 horsepower; No. 2, 12 horsepower; No. 3, 24 horsepower, and No. 4, which is intended for heavy delivery wagons and trucks. The gear is enclosed in a case which is to be kept filled with soft grease. In addition to the transmission gear, this concern makes a reverse gear for boats and a bronze positive circulating pump.

WHEEL RIM.—James M. Padget, of Topeka, Kan., is patentee of the clincher tire rim shown in the illustration herewith. The rim is made in two parts—the rim proper, *F*, and a removable convex split ring *E*. The form of both is apparent. Any detachable tire of standard section can be used, being secured against creeping by the use of three or more bolts, *D*, inserted from the inside of the casing. The tire having been slipped into position while deflated, a lug *B* in one end of the split ring is inserted in a recess formed in the rim and the convex ring is pushed into position encircling the concave edge of the rim and engaging the bead of the tire with its upper edge. A tool *C* is then inserted in a hole provided for the purpose and a slight pull given to draw the ends of the flange ring together, when a pin *A*, integral with a spring attached to one end of the ring, will spring into a hole in the opposite end of the ring, locking the flange in place until released. It is claimed for the Padget rim that it has no narrow channels nor threaded portions to rust or cause trouble and that a model of the rim was used for more than a year on the inventor's car without giving the slightest trouble.



PADGET RIM FOR DETACHABLE TIRE.

PUNCTURE-PROOF TIRE.—A tire embodying a novel form of construction, built with a view to avoiding danger of puncture while retaining all the resiliency of the ordinary pneumatic tire, is manufactured by the Mitchell Punctureless Pneumatic Tire Company, of Swampscott, Mass. A deep, round-bottomed steel channel takes the place of the usual wheel rim, and on the bottom of this channel rests a tube like an ordinary inner tube, but much thicker; the diameter of the tube is considerably less than the depth of the channel.. An outer covering, corresponding to the shoe of an ordinary pneumatic tire, covers the channel, and between the shoe and the inner tube are rubber plugs placed close together and with overlapping inner ends. These plugs are of such size that they just fill the openings left

by the flanges used to attach the outer covering to the channel. When the weight of the car rests on the tire the plugs at the point of compression are forced against the inner tube, which gives the requisite resiliency. The inner tube is protected by the steel channel and by the rubber plugs and cannot be reached by any ordinary puncturing object.

NEW LUBRICATOR.—An oiling device especially for use on Stanley steam cars is manufactured by William Hight, of Newport, Vt., and, according to the statement of the manufacturer, has been successfully tested in practical road use. The oiler is connected with the various frictional points of the engine by copper tubes; the pressing of a plunger every twenty miles is sufficient to keep the engine thoroughly lubricated; this can be done while the car is running. The device is fastened to the frame of the engine by two screws, and can be attached by any mechanic in half an hour. Every bearing on the engine is reached, including the crossheads, piston rods and valve stem guides.

TURBINE PROPULSION.—In engineering circles the arrival in New York harbor last week of the new turbine driven Cunarder *Carmania* was a notable event. The turbines are of the Parson's type and are of course steam driven. The huge vessel, of 29,800 tons displacement, is a sister ship of the *Caronia* of the same line, which is fitted with ordinary reciprocating engines. On her first trip over the *Carmania* proved to be a magnificent sea boat, as fearful weather was encountered through which she steadily made headway, arriving in New York on time and reporting not the slightest derangement of machinery on the way over. The ship has three turbines—one high pressure on the center line and two low pressure, one on each side. She has consequently three shafts and three propellers, and the rotary speed of the latter is much higher than is possible with reciprocating engines within the practical limits of piston speed. As the motion of the turbine rotor is in one direction and as it is carefully balanced, and as there are no changes in direction of any of the moving parts, there is a complete absence of engine vibrations, a seriously objectionable feature of all the faster ships fitted with the usual machinery. The equipment and accommodations of the new vessel are of Cunard quality, embodying comfort and endurance. This vessel will undoubtedly be the most popular of all transatlantic liners amongst engineers, for a trip on it will not only be an experience of physical comfort but of great educational value in the opportunity of watching the behavior of the turbines at sea. The gasturbine may never be realized, but the experiences with the steam turbine are worth serious attention.

DURO SECONDARY TIMER.—A timer to be used for distributing the high-tension ignition current for explosion motors is manufactured by T. Alton Bemus, of 294 Washington street, Boston, Mass., under the name of the Duro secondary timer. The instrument carries in the rear portion of its deep casing the primary contacts; and in the front portion are the secondary contacts and the binding posts from which wires lead off to the spark plugs. The front of the timer is closed by a disc of heavy glass and the secondary current is carried in through a contact piece passing through the glass plate at its center, thus thoroughly insulating the high-tension current and at the same time giving a clear view of what is going on in the timer. Both primary and secondary contacts are made by self-adjusting ball contact makers. By removing two wing nuts the casing can be removed, carrying the plug wires with it, and the interior can be examined. The whole instrument can be taken apart with ease. The shaft bearing is very long to give durability.

CONCERNING THE ROYAL.—An interesting piece of advertising has been issued by the Royal Motor Car Company, of Cleveland, O., manufacturers of the Royal gasoline cars, under the title "The Royal Transmission of Tucker." It is an attractive pamphlet, illustrated by engravings from photographs, telling about the testing of Royal cars in general and of the preparation for and the running of the elimination trial for the Vanderbilt Cup Race, so far as the Royal entry was concerned. The pamphlet is interestingly written and is worth reading.

OILERS AND RADIATORS.—Among the specialties manufactured by the Kinsey Manufacturing Company, of Dayton, O., are a mechanical oiler and a radiator containing several advantageous features from the point of view of the practical user. The lubricator is of the force feed type, and, as it is driven by the motor, it starts and stops with the motor. The amount of oil fed can be regulated from half a drop to fifteen drops for every 320 revolutions of the driving shaft. Each of the individual pumps can be separately adjusted, and any one of them can be separately worked by hand to flood its bearings, without disturbing any adjustments. There are no submerged stuffing boxes, and all adjustments are made from the outside. The radiator is made up of flat tubes, the inside dimensions of the tubes being 3-16 inch by 3 9-16 inches; the tubes are fitted with fins of peculiar shape, designed with the idea of presenting as much edge surface as possible to the cooling air currents. The flat tubes are flanged into top and bottom headers, and the manufacturers state that freezing will not cause leakage. All joints can be reached from the outside with a soldering iron. The Kinsey Company also makes hoods, fenders, tanks, pressed steel frames, steel dished dashes in one piece, brass mouldings, gasoline gages and other specialties for automobile work.

BRAZING COMPOUND.—A compound for brazing steel tubing, stampings and similar automobile and bicycle work is manufactured and marketed by the Cortland Specialty Co., of Cortland, N. Y., under the name of Banner Brazing Compound. It is put up in 1, 5, 10, 25, 50, 100 and 500 pound boxes. It is asserted to be stronger than borax, boracic acid or any product made from either, so that a smaller quantity has to be used and the work is always visible.

INDEX TO ADVERTISERS

THE AUTOMOBILE

VOL. XIII. NEW YORK—THURSDAY, DECEMBER 28, 1905—CHICAGO No. 26

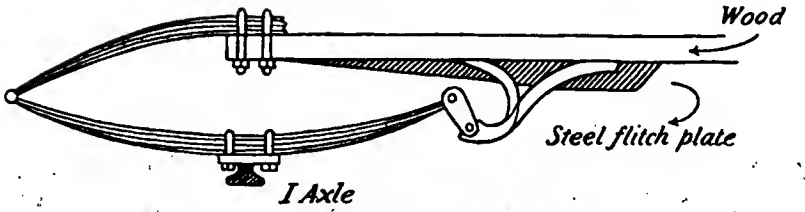
1906 MODELS AT THE PARIS SALON.

BY RENE M. PETARD.

PARIS, Dec. 12.—A point amongst others that forcibly impresses itself upon the visitor at the Paris show is the large number of cars made which, by their power, weight, mechanical excellency and the care devoted to the execution of their very minutest details, show that they are evidently made for only the highest class of trade and that it now becomes exceedingly difficult to discern amongst them what it is conventional to call the "leading makes," so many being the worthy new and old candidates to the title.

Starting with "The" pioneer concern (everybody says "Panhard"), we find that the old French house of reliability has changed but little of the 1905 models. The separate cylinders are strictly adhered to, and their construction stays identically the same as that of the past in both the forged steel and the cast-iron types. The valves are

PARIS AUTOMOBILE SHOW BY NIGHT—SHOWING BEAUTIFUL ELECTRIC ILLUMINATION OF MAIN HALL OF THE GRAND PALAIS.



REAR SPRING SUSPENSION OF PANHARD TOWN CAR.

always symmetrically placed on either side of the cylinders, the plugs above them being held down by the usual type of two bolts yoke. The inlet camshaft still carries the familiar variable profile device, consisting of a small hinged part which is caused to protrude or fall down below the minimum opening fixed profile of the cam by the sliding wedge inside the camshaft. The pump and magneto are both placed on the same side of the engine, being driven by the same line of shafts, a spring being interposed between two stub shafts to drive the pump so as to permit this weaker part of the transmission to break without causing any further damage should, for any reason, the pump fail to rotate either because of dirt stopping it or else because of its getting frozen up solid. The pump remains of the ordinary centrifugal type. The magneto is of the Eisemann system, high tension to conventional spark plugs, and is most readily accessible. This for the exhaust or left side of the engine.

On the right-hand side is placed the carbureter and with it the throttle.

In the 50-horsepower from which the foregoing pump and magneto details come, the control of the engine is by a hydraulic governor which was adopted last year. This governor, which the Panhard people state they will abandon and won't supply any more to the trade on account of its lack of regularity, is in a casing cast in one piece with the Krebs carbureter, which in all other respects stays unchanged. Incidentally, we shall say that upon inquiry we learn from one of the directors of the Panhard company that, starting from now, the Krebs carbureter will be supplied separate to other manufacturers, who may express the desire of using it, in fact several firms in France amongst the less important ones have already availed themselves of this advantage.

In the 24 and 30-horsepower models the foregoing description of the engine stands good. In the 18-horsepower everything stays unchanged from last year, this model being the smallest one which the makers term a "touring vehicle." A smaller size is, however, made, which, although it would certainly be better for touring than many other cars used for the purpose, is more especially designed for town use. The frame is very low, always armored wood, as in all other models; three-quarter elliptic springs are used at the rear, the upper third of the spring taking the place of the forged pump handle before fitted.

Truffault shock absorbers are fitted and the vehicle as a whole is wonderfully smooth riding. The power plant consists of a 15-horsepower engine with four cylinders of the usual Panhard description, but with chain-driven magneto on the dash; the magneto is also of the Eisemann high-tension system. The wood wheels are 870 by 890 mm. at the front and 880 by 120 mm. at the rear, which dimensions are very ample and should go towards a very reasonable upkeep in tires, especially in town work.

One of the most important characteristics in Panhard work this year is the adoption of the multiple plate clutch (which had hitherto been reserved for the racing or semi-racing models) on the touring models, and the reduction in the size of the gear box, which gives direct drive on top speed with the secondary shaft not running idle but actually standing still on that speed, and also the forming of the gear box and differential casing in two separate units connected by a fairly long shaft, *without any universal joints whatever,* so as to obtain very short chains, allowing extremely wide side entrances without being disturbed by the front sprockets and their chains. The spaces reserved for the bodies on the Panhard models are:

Fifteen-horsepower (motor in front), 210 cm. by 85 cm.

Fifteen-horsepower (motor under the driver's seat), 160 cm. by 85 cm.

Eighteen-horsepower, 250 or 260 cm., at will, by 85 cm.

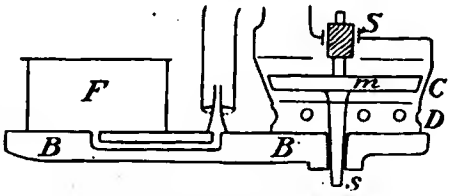
Twenty-four, 35 and 50-horsepower models, 250, 260 or 270 cm., at will, by 90 cm.

The list prices in Paris, which have been considerably reduced over those of last year, are now: 15-horsepower, 12,000 francs; 18-horsepower, 14,500 francs; 24-horsepower, 20,000 francs; 35-horsepower, 26,000 francs; 50-horsepower, 32,000 francs.

Next might be considered Renault, which contrarily to its show neighbor Panhard shows largely varying types of motors and cars. First of all, the 8-horsepower, with two cylinders, which receives very little attention, as it is a rather underpowered affair which does not find many admirers in these times of touring machines built upon racing chassis.

More interesting is the 10-horsepower, which is distinctly a town machine hardly suitable for any other use. At the very first sight the naked chassis of this machine strikes one as a new affair unlike all others; in fact such is the case. The engine consists of four cylinders cast all in one piece but with wide air and water spaces between each, the water jacket walls and the box plate only being common to all four. This engine is fitted with automatic inlet valves, which are placed on the same side and above the exhaust valves. The lift of the inlet valves cannot be regulated by hand, and the gas is led to them from the carbureter placed on the other side of the engine through a casting which is common to all four and pretty well covers up the whole top of the engine. A single water inlet and a single water outlet are used. The ignition is by high-tension magneto and by jump spark and battery working both on the same plugs, the magneto being an extremely small one, and the whole ignition shaft line being placed across the frame in front of the engine and driven by skew gears from the engine shaft, as in all other types of Renault cars.

All the Renault machines of this year are fitted with a new carbureter which, although embodying the same principle as the one used last year, is considerably simpler. One nozzle only is used and is in communication with the float chamber, by means of the special ducts bored out of the base plate *B*.



SECTIONAL SKETCH OF PEUGEOT CARBURETER.

Screwed on to the gasoline feeding duct is the nozzle, which projects upwards in a perfectly accessible and entirely open position; coming down over this nozzle, as shown in sketch, is simply a small copper tube, a little over 1-2 inch, which runs up to the throttle casing close to the valves. Alongside these parts is a large chamber borrowing the form of a truncated cone *C* placed over a short cylindrical part *D*, and from one side of the top of which starts a pipe which runs alongside the small pipe before mentioned up to the throttle. Inside the truncated cone part is a heavy bronze disc about 4 inches in diameter and 1-4 inch thick, *m*, which is guided at its lower part in a slide *s* formed in the base plate *B* and at its upper part by a steep pitch screw *S*, screwing into a nut formed integral with the top of the casing. The sides of the disc are beveled in order to allow the disc to rest on the lower part of the truncated cone in ordinary circumstances, seating itself there much in the manner of a poppet valve. Large holes are drilled in the lower part of the casing on part *D*, which holes freely communicate with the outer air. When the engine revolves very slowly, the thick mixture formed around the nozzle in the small pipe is sufficient to keep it running, but if the speed is increased the increased suction from the piston will be sufficient to lift the disc off its seat, the steep [illegible] preventing too sudden motions to take place, and cold air from underneath is allowed to reach the throttle. In the latter, the two

GENERAL VIEW OF ROTUNDA AND WING OF GRAND PALAIS DURING INTERNATIONAL AUTOMOBILE SHOW WHICH CLOSED IN PARIS SUNDAY NIGHT, DECEMBER 24.

tubes before mentioned meet, and the throttle is of such a form, combining a sliding and a rotating motion, that suitable openings determined once for all present themselves at the mouth of the pipes and are intended to correct what small errors are constantly found in the proportioning of the mixture in automatic carbureters of any type, all this being accomplished by a single motion of a single lever within the driver's reach. The arrangement is such on the 10-horsepower model that a small lever on the dash sets the throttle to the desired speed. no governor being used, while a foot pedal permits any degree of acceleration above the set speed without altering in any way the setting of the hand lever.

The same carbureter is used on all the other cars but with different means of actuating. The engines on the touring vehicles are practically identical with those of last year in every respect, the main change being that in the two heaviest models special alterations to the usual type of Renault gear box, give four speeds and reverse instead of three. The clutch and rear axle stay unchanged, and the small details which are to be found in the car to increase its convenience in handling and adjusting will be described under a different heading. The types shown in naked polished chassis form are the two-cylinder 8-horsepower, the one-piece four-cylinder 10-horsepower town vehicle, the four-cylinder cast in pairs 14, 20 and 30 nominal horsepower models, all fitted with the usual Renault live axle drive and thermo-syphon cooling system, with radiator in front of the dash.

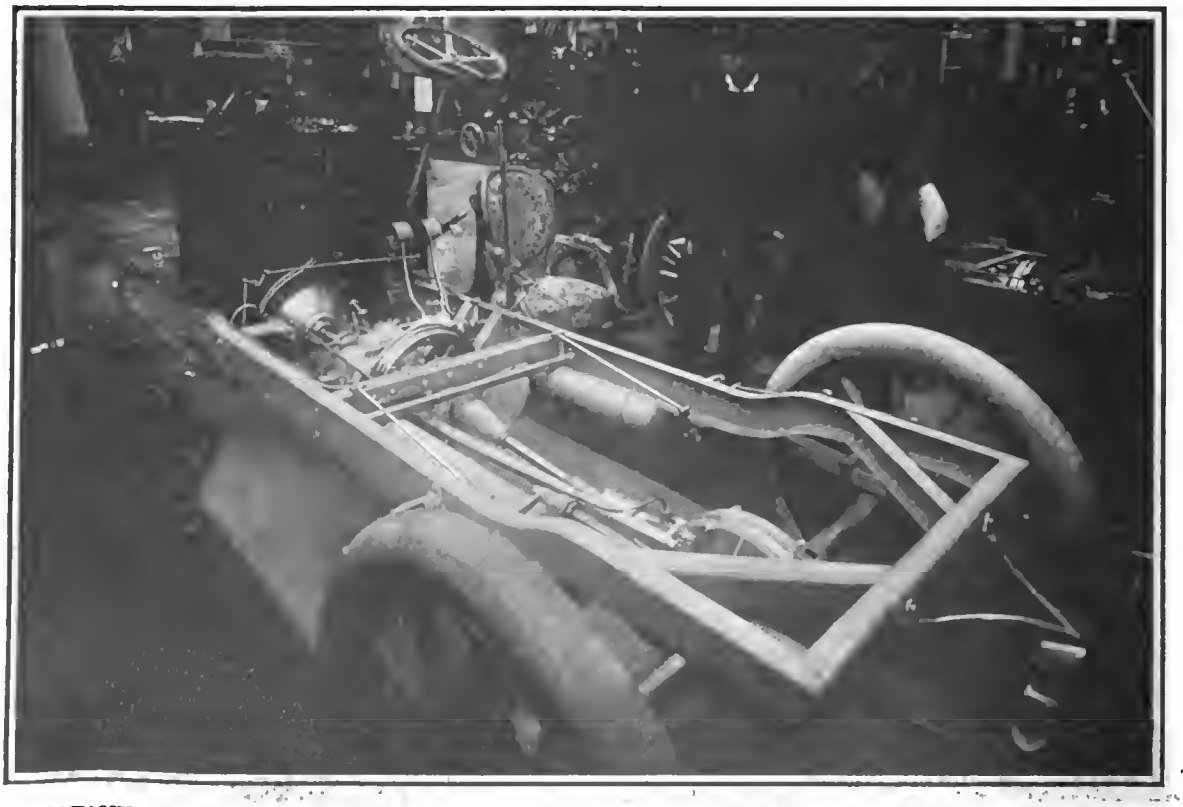
(To be continued.)

Tendencies in Car Details at the Salon.

PARIS, Dec. 12.—The general lines along which important developments have been taking place in the generality of the vehicles shown at the Salon have already been outlined in a previous technical article, which might well have been entitled: "The general impression made by a bird's eye view of the Paris Salon." The statements made concerning the tendencies exemplified in the best makes of machines, however, require a more detailed study of the particular systems used by the different designers, to be fully justified. In order to do this systematically the entire anatomy of the modern automobile will have to be studied, part by part, but unfortunately, perhaps, a little too briefly; the improvement, especially in the details, being such that the compass of this article would be insufficient to cover even a small fraction of all that suggests itself concerning some of the more important components of the machines.

Starting from the ground upwards we find first the tires, but as these are of absolutely special character, a separate study of them will be made elsewhere and the wheels also discussed. Despite the good results obtained from wire wheel in numerous speed and endurance contests this year both in France and England on machines of all powers from the Darracq and Napier racers down to the smallest voiturettes, we find that on stock cars of any description except perhaps a few that really belong more to the motor bicycle class, the artillery wood wheel is absolutely the rule, its construction staying unchanged from last year, except that instances are more numerous in the present show of tapered hub bodies permitting to draw the spokes outwards and thus tighten a loosened wheel by going over the bolts that unite the hub flanges. On the cheaper machines undue use seems to be made of an inferior class of cast materials for the manufacture of the hubs.

A point worthy of note is that, after the gradual disappearance of the side chain for cars of low and moderate power the practice of the former years had been to fasten the emergency brake drums directly on the hub, thus leaving the wheel spokes entirely unsupported for their whole length, while such was not the case with the chain driven cars, in which the rule was to bolt the driving sprockets on to the spokes fairly close to the rim. Attentive study of the new conditions of working of the new type of wheel thus evolved, and the experience gained during the time elapsed since the more extended use of the live axle drive has shown that this is a defective practice, and it has been found necessary to supply the spokes with a supporting member uniting at least every pair so as to form a more solid whole. In consequence, on the highest grade shaft drive cars the brake drums are fastened to the spokes somewhere in the central third of their length; thus forming the desired



CHASSIS OF RENAULT 10-HORSEPOWER CAR, SHOWING CLUTCH, BRAKE, PROPELLER SHAFT DRIVE AND AUTOMATIC STARTING APPARATUS.

DISPLAY OF AMERICAN RUNABOUTS AND LIGHT CARS AND CHASSIS IN MAIN HALL OF GRAND PALAIS DURING PARIS SHOW.

support, exactly in the same manner as is customary with chain drive wheels. This presents the further advantage of permitting the use of larger brake diameters without causing any torsional strains on the hub, while the braking power being applied close to the rim the mechanical conditions are distinctly improved. Another point, and a noteworthy one in favor of the system, is the stronger "appearance" of the wheel, which then looks less flimsy in comparison to the extremely bulky bodies now fitted as a standard.

The pressed steel wheel in the full web type does not appear on any of the touring cars shown, but is found in several commercial vehicles, at the same time the tubular built up steel wheel is now existent. From the form generally given to the wheels it results that artillery bubs are universal, no noteworthy improvement in their general lines being found. It is to be found, however, that on the average and even the lightest machines the size of the hubs has been increased, this coming first from the increased diameter of wheel spindles caused by the greater weight of the new bodies used and second the use of ball bearings or the pretention to appear to be using them even if such is not the case. In, fact, it seems no very great increase is to be found in the number of the firms using ball bearings in their wheels, this being caused by the quite general belief that for the load imposed on a car hub with the present weight of fast touring cars, and considering the shocks to which the hub is subjected and the speed at which it runs, it is pretty difficult for a ball bearing to be made within a reasonable price and size that will stand for a really long period.

Passing to the axles, we find more and more live axles for the rear drive, the construction of these becoming every year stronger in appearance and in fact, while total weight of the part is hardly increased. The "floating" axle type in which the driving effort is transmitted by shafts which have absolutely no other duty to perform—the live axle casing being used to carry the weight of the car by extending it through the wheel hubs—is becoming the rule. Thus no more trouble should be experienced (as was sometimes the case in the past) with spindles snapping right at the joint between the hub and the axle casing. Another type which is constantly gaining in popularity and deserve to, is the double back bridge system in which a down or back bent solid rear axle is used to carry the wheel hubs on its hollow ends while at its center is bolted on suitable lugs to the differential casing, the down sweep of the solid axle being designed so as to permit the centering of the differential casing bearings coincidently with the axis of the hollow axle ends. Two shafts are then passed through the spindles into the bosses formed in the center of the differential wheels, resting on the bearings of the differential case. A castellated piece of steel, or else a spider, is then slipped over a square or a keyway formed on the end of the already mentioned driving shafts, these pieces meshing with corresponding work on the hub ends, the whole being covered up by the hub cap. It will be seen that in such a construction better theoretical results are obtained than in the ordinary or in the floating axle systems, as in these it is quite a difficult matter to obtain a perfectly rigid casing for the differential, even when tension or truss rods are used, as there are generally at least three distinct parts assembled, each of which is likely to develop weakness or even simply undue elasticity, thus conducing to a short life and axle sagging.

It is claimed that this construction partakes of some of the advantages of the chain. While this seems to be a rather particular point to discuss, it will certainly be better to leave the discussion open to

the personal criticism of the readers. It is, however, evident that this construction is vastly stronger than the preceding one. In some instances, such as in the case of the Aries cars, small-range universal joints are fitted in the differential gear hubs to permit slight torsions caused by the elasticity of the metal in the axle when a shock of more than ordinary severity has to be withstood.

(*To be continued.*)

Body Styles and Touring Conveniences.

By WILLIAM F. BRADLEY.

PARIS, Dec. 12.—Real progress has been made by automobile body builders in the four essentials of strength, lightness, comfort and elegance, and among the many specimens exposed at the Salon by well-known French builders, are several which appear to be perfect for their respective classes of work. Houses on wheels, and other such freak bodies, are not present at all, but there are in their place limousines and touring cars possessing all the essentials for comfortable travel in a practical form.

At the Léon Bollée stand is a new type of limousine body just brought out by the firm of Kellner & Ses Fils, and named by them the St. Christophe body. The principal feature of this body is that the two rear corners have been flattened down, forming a flat panel bevel about five inches wide at each corner. In the gallery on the roof the same idea has, of course, been carried out, the side and rear guards being united by a piece running across cornerwise. This results in a distinct gain in elegance over both the square angle and the rounded end body, and gives the car a particularly handsome outline when viewed from the rear; at the same time there is no loss of internal space compared with the two forms mentioned. The body is painted in a rich crimson with narrow black and lighter crimson perpendicular striping; all outside fittings are in polished brass; the roof and gallery, or railing are in black, the gallery having brass terminals.

Inside the car is upholstered in grey broadcloth, with all metal fittings electroplated and woodwork of polished mahogany. The rear seat is very wide and is supported on metal runners, permitting it to be pulled out about ten inches. A handle is fixed on the front for this purpose, and has to be turned around slightly to release the seat. Immediately on letting go of the handle the seat is locked in position. Opposite the rear seats are two folding seats which close up flat against the front of the car. On the outer edge of each of these seats is a projecting metal pin fitting into a socket on the door; thus, when the seats are occupied it is impossible for the doors to open, and they can be leaned against without fear. Upon rising from the seat the whole shuts up automatically, leaving the doors free to be opened.

Between the two seats, and placed at a convenient height, is a small, folding mahogany table, and immediately above it a small but completely equipped toilet case, containing mirror, cut-glass bottles, etc. Under the rear seat is a large mahogany drawer, with special compartment for a hat and storage space is provided by side pockets., while a net close to the roof provides accommodations for light objects.

The side windows, the bottom inner corners of which are suitably rounded off, are fixtures, being secured by easily removable metal angle pieces of small size. The windows in the door and in front let down into pockets, and to prevent all rattling are secured by a pin passing through the top of window frame and into the bodywork. Every detail that could add to the elegance and finish of this car has been carefully thought out. Thus, on either side, between the side window and the door is a tubular flower rack encircled with chased silver bands and having glass tubes for water. The braiding is of a special design in the *art nouveau* style, and even the end of the window strap has received attention, the terminal being a velvet bulb with corded embroidery of artistic design. Electric light is provided, the storage batteries being in a chest under rear seats and opening from back of car. This elegant automobile has been bought by Norris N. Mason, of New York, and will be exhibited by him at the New York show.

A Muhlbacker limousine shown by Léon Bollée has movable panels to fit into the rear window frames, the inner side being thickly padded and upholstered in harmony with the rest of the body, and the part visible from the outside covered with pleated brown cloth.

Decauville Winter and Summer Body.

The Decauville people show an interesting body by Audineau, which can be readily converted from a closed town vehicle to an open touring car, and this without any apparent sign that such change is possible. The sides are readily removed by unscrewing bolts inside, hidden from view by the upholstery, thus transforming a limousine into a double phaeton with fixed dash and extended top. When the sides have been removed a padded arm rest is placed over the exposed groove and the remaining portion is covered by a piece of rounded polished mahogany, both so arranged as to be screwed on with the least possible trouble. When these are in position there is absolutely nothing to show that the car has ever been anything else than an open vehicle.

This limousine, upholstered entirely in grey broadcloth, has rear seat wide enough for three persons and two folding seats just behind the bucket seats and folding up close to the latter. Each of the folding seats is fitted with a back composed of side members and a cross section or back proper. If it is not desired to use the back, it can be closed down, the side bars fitting at each side of the seat and the back rest forming an extension. The glass front of the rear compartment is in three parts, two of the windows being hinged to open inwards, and the whole being so hinged as to close up against the roof. These windows are fastened by a clip and can be secured perfectly tight by means of a small thumbscrew. From the extended top to the top of the dash is also a glass screen, hinged to close up against roof. The two side windows are also made to open, one-half folding back on the rear half outside and being secured by a brass clip. The hinges are completely hidden in the woodwork.

There is a speaking tube to driver, electric light, rear window, blinds on spring rollers all around, and all metal fittings are electroplated. Externally the car is painted a rich crimson with a darker striping and the lower portion of the body is black.

Building Convertible Limousines.

A very large number of makers have attacked the problem of constructing a vehicle suitable for both summer and winter use; that is, a car with all the elegance of a limousine and all the airiness of an open touring car. Roux & Pichard show a limousine that can be made into an open car at a moment's notice, and in which the problem of an all-the-year-round car appears to have been perfectly solved. The side windows are hinged at the top, and by releasing a bolt they can be closed up against roof and fastened there by means of a strap and a clip.. The window frame is hinged at its base, and by releasing a spring can be made to fold down into the inside of the car where, by an arrangement of the upholstery, it does not protrude. The forward half of the window frame is a portion of the roof support, and remains in position even when the car is used as an open vehicle. Front windows let down into pockets, and the extended top can be lifted off by unfastening four thumbscrews, thus changing a limousine into an open car with fixed back and top as far as the rear of the front seats, the complete transformation being effected as readily as the strapping of a portmanteau.

Internally, the Roux & Pichard limousine is elegantly fitted, the upholstery being in grey broadcloth; there is a rear seat for two, and two folding and pivoted seats, electric cigar lighter, electric light in the roof. with wire passing outside and so arranged that the driver can switch off the current without going inside; blinds for all the windows, and electroplated fittings. Despite its size and the width of the rear panels, the body is built entirely in wood, its total weight being about 990 pounds.

A main feature of the limousine exposed by E. Vicart Fils is that the door windows

do not let down into pockets, but are hinged to the sides and fold back upon the side windows. By means of a bolt on their lower front corner they can be made to form a part of the door and open and close with it.

CONVERTIBLE BODY WITH PORTABLE SIDES.

Léon Buat has not only constructed a convertible limousine, but has provided for the storage of the removable sides on the car itself. The glass window of the door lowers into a pocket, the two side frames are hinged and fold down on to the inside of the door, where they are held by a clip. The wide window behind the front seats descends into its pocket and the sides are lifted out bodily and put into a specially prepared pocket between the front seats and the transverse window pocket. The opening through which they are inserted is only three inches wide and is concealed by a metal plate secured by two thumbscrews.

The well-known firm of Lamplugh has on its stand an elegant double phaeton touring body, with fixed back and extended top, finished inside in mahogany and red leather and provided with eight drawers, four being under the rear seats and four under the front seats, all provided with locks. On each of the side doors are two leather pockets with locks. The dais is supported by a stay just to the rear of the front seats, and the gallery occupies the center only of the roof.

PROJECTING WINDOWS AND WOOD FINISH.

Another St. Christophe body, by Kellner, similar in outline to the one shown on the Léon Bollée stand, is exposed by Delaunay-Belleville. The external feature of this car is that the side windows, consisting of three panels each side, project about four inches, the ends being rounded off so as to give an elegance of form and reduce wind resistance. Inside there are window ledges. Only the rear seat and the two pivoting and folding seats are upholstered in cloth, all the rest of the interior, including the roof, sides, door, and the back above the level of the head being in polished mahogany. This style of internal finishing is one of the novelties of the show, and seems likely to become popular, for it is elegant in appearance and essentially hygienic.

The limousine has a small, folding, polished mahogany table between the two front seats, with a leather toilet case above it. In the roof is an electric lamp and at the rear of the roof is a ventilating fan. A feature is an instruction board on the dash immediately in front of the driver, by which on pressing a corresponding button on an indicator board within the car any one of twelve or eighteen orders can be transmitted to the chauffeur. The apparatus on the dash consists of a small box with a red glass top, on which are faintly visible in black letters the words: "Stop, advance, faster, slower, turn left, turn right," etc. By pressing a button the desired word is illuminated by an electric lamp within the box, and at the same time an electric bell rings briskly for a second.

A NOVELTY IN UPHOLSTERY LEATHER.

One of the few novelties of the show in the form of upholstery is a shaded leather which, viewed a few inches away, resembles perfectly a fine art cloth. A closer inspection shows that it is calf. The car on which this new upholstery is used is an elegant little electric with the usual form of bonnet in front and one transverse seat for two passengers. The body is painted in two shades of rich brown with gold lining; all the fittings are in brass, and the leather in two shades of brown. Right in front, where the radiator is usually found, is placed an electric headlight entirely in brass and projecting but two or three inches. For elegance of form, as well as for novelty of upholstery, there is nothing to beat this little electric runabout in the whole show.

THE AUTOMOBILE representative was informed that four calves' skins were used in the upholstery of this car, the only one that has been done in these new shades. Various other double tints have been brought out, all of them of very pleasing effect, and all resembling, except to the touch, the finest shaded art cloths. They do not soil readily, the shades are not too delicate for outdoor use and their wearing qualities are those of the best calf.

PROTECTION FOR THE DRIVER.

At the Panhard stand Henri Labourdette displays a limousine body in which the driver is completely protected. The dash is made higher than usual and curves inward in two successive curves. From the top of the dash to the roof is a glass window the full width of the car, hinged to swing up to and fasten against the roof. The right-hand side is completely closed and access to the driver's seat is only by means of a door on the left side of the car, the hinges of which are to the left and which is opened by a knob sliding perpendicularly. The two doors giving entrance to the rear portion of the body open toward the rear. In the fore compartment the steering wheel is under the curved dash, the controlling levers are on the right and the lubricator is hidden away under the lower curve of the dash.

The C. G. V. people show their new chassis with driver's seat on the left and controlling levers in the centre and with new rear suspension, consisting of longitudinal springs, C springs and a transverse spring. Although a body is not fitted, it is evident that his new form of suspension should give great comfort in riding.

UNIQUE THREE-PASSENGER LANDAULET.

Another novelty is a three-quarter landaulet in which the seat to the left of the driver is enclosed so as to form part of the interior of the car, giving inside two places on the rear seat and one corner seat in front. Thus a landaulet which usually provides accommodation for only two persons, has room for three without any increase of wheelbase. It is a distinct gain of space and the car is much admired by visitors, though it cannot be said that the automobile has gained in artistic appearance. The driver is well protected, for he has the roof over his head and glass windows on each side of his little recess.

A limousine by Mulliner, shown by Charron, Girardot & Voigt, is finished entirely in polished mahogany, only the rear seat, back and two folding pivoted seats being upholstered in red leather. Opened out, these two seats form armchairs; closed, they enter into a chest below the front window, the depth of which from front to back is only about three inches. The doors of these two chests are hinged at top, and when they are opened out two mirrors are exposed.

THE MODEL TOURING CAR.

Those in search of a perfect touring car examine with interest the automobile shown by the Touring Club of France as "the car for touring." The chassis is a 24-horsepower, giving 32 horsepower on the brake, capable, with a 660-pound body, 600 pounds load and 330 pounds of baggage, of traveling at thirty-two miles an hour over varied roads. The body is a double phaeton, Roi des Belges by Rothschild, with side entrance doors opening forward, two bucket seats in front and cape hood with extension to a stanchion running up from each side of the dash. The driver is protected by the new Huillier shield, which consists of a sheet of glass with wooden frame swinging from the upright stanchions. The shield descends to about an inch below the front of the steering wheel and to its lower edge is buttoned a leather apron also attached by means of buttons to the outer edge of the dash. With the movement of the car the glass shield swings freely, but is prevented by the apron from touching the steering wheel. Everything likely to be needed by the chauffeur is contained either under the front seats or in boxes on the running footboard, and the travelers' baggage is carried on a platform in the rear. The rear seat will carry three persons if necessary; there are two folding seats; attached to the back of the bucket seats are racks for carrying rugs, and on the inside of the doors are large leather pockets with flaps. There are two searchlights, two lanterns on the dash, and a tail light, while on the steering column is a small portable electric light with two or three yards of wire, to be used for examing any part of the motor or for reading sign posts at night.

FEATURES OF MERCEDES DOUBLE PHAETON.

The Mercedes firm has a double phaeton touring car with false floor boards in the interior hinged across the middle so that the rear half folds forward, making a sloping foot rest similar to that in front. No hinges are visible and no support of any kind has to be placed in position. The car has side entrance with doors hinged at the front. Two large Louis Vuitton trunks fit under the rear seats and are enclosed by

a metal sheath entirely demontable and shaped to continue the curve of the rear of the body. Under front seats is a locker in which is stored another trunk, accessible from the left side of the car. Under the running board are three metal drawers and two open spaces. Between dash and front seats are low wood doors opening from rear to front and having brass-bound tops. On the left side of the front seat is a swinging lantern which can be moved in any direction and which is intended more especially to light the footboard when entering or descending from the car.

SIDE ENTRANCE SUPERCEDES OTHER FORMS.

In the whole show there are only two or three rear-entrance tonneau bodies, and hinged and revolving front seats, giving access to the rear of the car, so plentiful last year, have this season almost entirely disappeared. Everywhere the side-entrance car is met with, even in touring cars of very moderate power. Where the wheelbase is not sufficiently long to allow a side entrance, a two-seated body only is preferred to a larger one with rear entrance. Inside steering bodies are also very rare, there probably not being ten in the entire exhibition. In the cheapest class of cars, single-cylinder automobiles from 5 to 10 horsepower, and selling as low as $400, of which there are quite a number in the Salon there is practically no body work. The framework of the two seats is an integral part of the two side frames, and is bolted together with them. All that is necessary is to pad and upholster the seat and back, this being almost invariably done in leather. There is a large increase in the number of doors opening from back to front.

QUIET COLORS AND STRIPES PREVAIL.

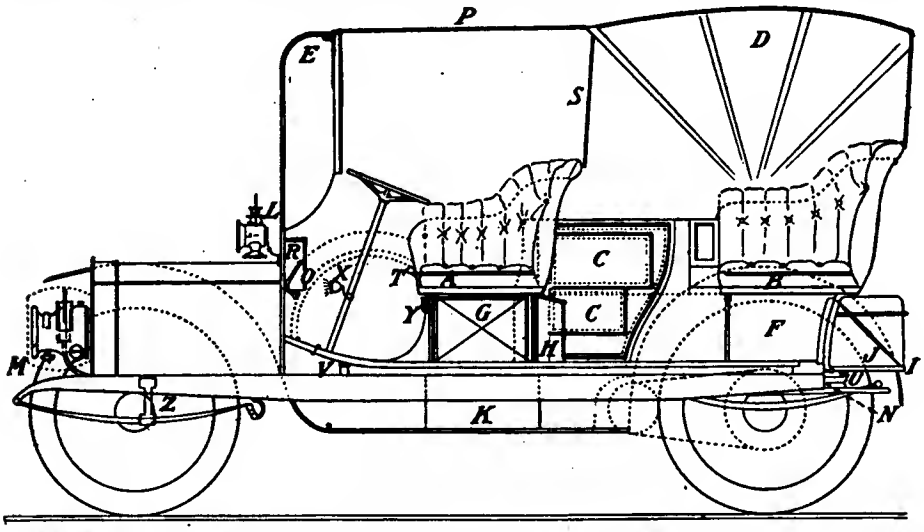
Although there is an endless variety of colors, there is a general tendency toward quietness. Town vehicles are almost always in dark colors, with striping in a darker or lighter shade of the same color. Dark blue and black, with light blue lining, dark green, olive, deep crimson—all of them with perpendicular stripes in a soft tint are the favorites for the most expensive classes of cars. Bright red is popular for big open touring cars, but even here the tendency is towards quieter colors. Strong yellows, white and red, as well as strong contrasts in colors, are not met with now.

LUGGAGE CARRIER ON ZUST CAR.

A new luggage carrier is shown by the Zust firm fitted to a double phaeton touring car with Cape hood and leather extension to supports from each side of the dash. The carrier is made by Pavesi & Crespi, of Milan, the builders of the car body, and consists of two side members in angle metal, broad transverse end pieces in wood bolted to the side frames, and lighter wood cross members hooking onto the side members and kept in position by end pressure. There is also a light metal rail which is bolted to the side and transverse frames. The cross bands are all united and fold up like an accordion when not in use. This carrier is attached to the fore end of the Cape hood and the metal stanchions on the dash by means of thumbscrews. When taken to pieces, it is stored in a case under one of the running boards especially prepared to receive it.

On the same car is a rear luggage rack which pushes under the body when not in use. When pulled out it is secured in position by two hooks fastening onto a beading near the floor of the car body.

At the Benz stand is a body built to private order with a metal luggage carrier in the rear and half a dozen brass rods curved to the shape of the car, secured to the floor of the body. These rods serve both to keep the luggage away from the body and to attach it securely by means of a strap.



SIDE ELEVATION, PARTLY IN SECTION, OF IDEAL TOURING CAR EXHIBITED AT PARIS, SHOWN BY THE AUTOMOBILE CLUB OF FRANCE.

A, Front seat cushions. B, Rear seat cushions. C, Pockets on doors. D, Cape hood. E, Huillier patented shield. F, Chest under seat. G, Tank. H, Chest inside of car. I, Luggage Platform. J, Trunk. K, Trunk on running board. L, Side lamps. M, Searchlights. N, Tail light. P, Leather extension top. R, Chauffeur's chest. S, Shield from hood. W, Lamp covers. Z, Edo patent suspension. On right of car: O, Extra tire with cover. T, Filling tube for fuel tank. U, Filling tube for water tank. X, Portable electric light. Y, Strut. V, Filling tube of oil reservoir.

Pictures at the Paris Salon.

PARIS, Dec. 15.—At the extremity of the top gallery, far from the fashionable crowds, the gaily bedecked stands and the wonderfully artistic illuminations, the directors of the Salon have installed the fine arts section. A series of rooms uniformly draped in red cloth, hung around with oil paintings, water colors, etchings and photographs, its bareness is a strange contrast to the richly carpeted stands, with their thousand lights, rare plants, glistening chassis and stately bodies.

Nobody visits the art section except an occasional enthusiast who intends to get all that the show can offer him. The only sound is the chatter of the saleswomen's voices in the adjoining galleries, for they have very little to do and must fill in the idle moments with woman's never-failing hobby—gossip.

Yet there is much of interest in this artistic section. Starting away back at the beginning of the nineteenth century, the visitor is treated to a series of colored prints showing the genesis of automobilism. Curiously enough, it is England that has furnished nearly all the prints in the collection of the Automobile Club of France, Johnson's Pedestrian Hobby Horse Riding School, in the year 1819, is shown as the precursor of the automobile school of the twentieth century. Then follow scenes from the lives of these early automobilists, who had never heard of a combustion chamber, and, as one passes in rapid review, the engravings showing some of the delicate attentions they received from the veterinary surgeon, the blacksmith and the horse dealer, one's heart softens towards the jury which imposed the last $50 fine for exceeding the speed limit.

At the earliest stage of the industry France has no prints whatever to show, and fills up the gap with illustrations of elegant horse-drawn vehicles and prancing steeds.

In the next room the steam stage is reached with lithographic prints of George Stephenson's *Rocket*, first-class trains on the Liverpool & Manchester railroad, the opening of the Stockton & Darlington railroad and other similar railroad experiments. Caricatures of the hobby horse, and the new steam stage coach guaranteed never to blow up are numerous, and among them is one by Cruikshank depicting the funeral of the hobby.

A section dealing with animal locomotion in the eighteenth century depicts the old French *diligence* and the lumbering English stagecoach in all their ancient glory. Cross the threshold and Panhard, Daimler, Charron, Louis Mors, Levassor and other founders of the industry appear with the wonderfully complicated vehicles which

opened the way for the present day automobile.

The years 1898, 1899 and 1900 furnish many prints and photographs of interest to all who have watched the rise of the sport. René de Knyff in the Paris-Amsterdam contest, Heath on his No. 5 and numerous scenes from the Paris-Bordeaux race are to be seen. Present day automobilism is next reached, and with it a great increase in the number of pictures. Jenatzy figures largely. Théry comes on the scene, and René de Knyff is seen taking corners at terrific speeds. The period from 1900 has supplied plenty of material for the artist, and many a good drawing is to be found. Several of those exposed have already been printed in large numbers and are almost as well known as Whistler's most popular works. There is a splendid selection of lithographic prints in colors which would be admirable as decorative panels for automobile club rooms, or for smoking-rooms.

Only one American scene is shown, this being an illustration of two cars running side by side on the Ormond Beach, while in separate panels are a group of officials and portraits of two victorious chauffeurs.

"Carrying off the Cup" represents Emperor William rushing off at full speed with the Gordon Bennett Cup on his shoulders; in the background are to be seen President Loubet in evening dress and the King of England in a gorgeous military uniform running frantically after the retreating trophy. Close by can be seen the King of Belgium with one hand on the bonnet of an automobile, the other on the shoulder of the German Emperor, dressed, like him, in the fur cloak of a chauffeur, to whom he is confiding that the machine is much easier to manage than his country. Serio-comic scenes are unending, and all those incidents which are supposed to befall those who go on the roads in automobiles have been seized upon by the artists. The originals of many well-known series of motor postcards are also to be seen.

There is less of interest in the water colors and oil paintings section, and, indeed, it is difficult to discover a connection between automobilism and some of the works exposed. A fine oil painting of René de Knyff on a Panhard racer by Louis de Schryver attracts instant attention for the spirit of speed which the artist has so ably placed on his canvas. Reconnoissance of a strategic point, by Henry Perrault, shows two French army officers in an automobile driven by an Alpine chauffeur reconnoitering in the mountains. There is a striking portrait of the Marquis De Dion, a clever little painting of the *Rapière* going at full speed through a calm sea, a very good impressionist painting of a scene outside the Grand Palais—at night—during the automobile show, and a scene outside the Automobile Club of France.

Under the heading of Sculpture twenty works of art have been gathered together, among them being two busts of M. Gustave Rives, director of the French Automobile Show; an automobile cup by Aucoc, the maker of the Gordon Bennett Cup, many chimney decorations and statuettes in which the automobile is the subject of the design. There is a remarkable automobile horn in carved bronze with the hind legs of a toad, an elongated body and a fearfully wide-open mouth and two large ruby eyes. It is of handsome design and clever workmanship by Paul Louchet.

In the photographic section there are few exhibitors but plenty of photographs. In a complete series of photographs of all the principal automobile races and touring contests held in France during the past year, and shown by the official photographers of THE AUTOMOBILE, are naturally a large number of the Gordon Bennett event. Tracy, Dingley and Lyttle all figure in the exhibition by the side of the French favorites headed by the ubiquitous Théry. Some splendid enlargements of the Florio event and the Ardennes meeting are also to be seen.

American Agencies in France.

Charles H. Meigs, who was in charge of the Cadillac stand at the Salon, is placing agencies all over France and in various other parts of Europe. Although only just returned from a long journey in Russia and western Siberia, that was accomplished only with the greatest difficulty, owing to the total stoppage of trains on many railroads, the Cadillac agents will again set out in a few days for the same unsettled country.

It is very probable that the Locomobile Company will establish an agency in France at an early date. Two or three years ago Locomobiles were first placed on the French market. The company's agents are again negotiating, and a move may be expected shortly.

The Columbia agency has left the garage in the Rue de la Boëtie, Paris, for larger premises in the Avenue de la Grande Armée, a thoroughfare devoted almost entirely to automobile retailing and containing the stores of the most important French firms. Columbia cars are well known in Paris, an agency having been maintained there for over six years. During the present winter season there is an especially good demand for American electrics in such fashionable health and holiday resorts as Cannes, Grasse, Nice, Monte Carlo and Monaco.

Rushmore, of searchlight fame, is the latest American to invade the French automobile market. An agency was opened for Rushmore searchlights about two months ago in the Avenue des Champs-Elysées, and since then the searchlights so well known in the states have been extensively adopted in France. Owing to their late arrival on the scene, only a small stand could be secured in one of the obscure galleries of the Salon. Mr. Rushmore is at present visiting Paris and has made arrangements for an extension of operations in France.

Olds Banquet in Paris.

PARIS, December 15.—Taking advantage of the presence in Paris of their representatives from every part of the world, the Olds Motor Works gave a banquet to all their agents and representatives last night, at the excellent Restaurant Durand. John L. Poole, the European agent, sat at the head of the table, and around him were Dwight B. Huss and J. Amrant, at present looking after the interests of the company at the various European shows, and agents from Paris, London, Florence, Christiania, Munich, Amsterdam, Copenhagen, Odessa, Bucharest, Milan, Lisbon, St. Petersburg, Moscow, Berlin, Hamburg, Naples and Algiers.

To say that each spoke in his own tongue would hardly be correct, for all spoke in many strange tongues—or tried to—and the result was a wonderful jargon that none but auto enthusiasts could understand.

A curious fact about the Olds business in Europe is that, notwithstanding the upheaval in Russia, there is no dropping off of the sales of American automobiles. Three trainloads of cars are at the present moment crossing the Atlantic for the land of the czars, and Russian agents attending the show in Paris are placing further orders.

Foreign News Notes.

Director Maybeck, of the German Daimler Works, has admitted the open secret that the new Mercedes cars for racing purposes will have six-cylinder engines. He expressed himself as thinking that six-cylinder motors are eminently suited for racing machines, but that the number of cylinders is superfluous for any other purpose.

* * *

Just before his demise, Clarence Gray Dinsmore presented the Herkomer committee with a sum of 10,000 francs ($2,000) for prizes for the contest.

* * *

The annual Berlin show, from February 3 to 18, will comprise the following features: Pleasure cars, army vehicles, sanitary and first-aid wagons, fire brigade engines and carts, commercial trucks and wagons, motorcycles, auto-boats, tires, parts, spares, accessories, clothes, literature, etc. All intending exhibitors are requested to address Baron von Brandenstein, German Automobile Club, 16 Leipziger Platz, Berlin, W.

* * *

The principal of Cardiff Universiy College, in Wales, lecturing recently on side slips, said that the automobile of the future would be a six-wheeled car, the driving and braking to be done on the middle pair of wheels. Such a car was exhibited a few years ago in Paris.

Megargel and His Companions Very Much Alive in the Mountainous Southwest.

FLAGSTAFF, Arizona, Dec. 21.—When I wrote my last story of the trip at Williams, thirty-four miles east of here, and dated it Flagstaff, I fully expected to be in Flagstaff the following morning. That was Saturday, and I did not reach Flagstaff until Wednesday noon, and then only after the hardest struggling through snow that I have ever experienced or ever hope to again.

Leaving Williams at 9 o'clock at night, we ran about four miles but found the snow and mud so soft that we decided to camp out and wait until after midnight, as by that time we expected the ground would be frozen solid. It was. Leaving our blankets and campfire at 1 A.M. Sunday morning we again started eastward, steadily climbing higher and higher up the side of the mountain. First thing I knew we were in a bog, having gotten off the trail, and our car went in to the body.

We got out our cable and endeavored to find something to which we could attach it. There was nothing in sight but mud and ice-covered water. We planted post after post, but when we applied ourselves to the windlass they were jerked out of the ground. In the meantime our car was continually settling deeper and deeper in the mud, and I knew if it froze where it was we would have a find old time getting it out. The sun was just rising when we eventually cleared the bog and again started eastward, not however until we had had a sup of hot coffee made over a wood fire.

Sunday we pushed on all day, not seeing a house or human being, and steadily mounting higher and higher, the air, all the time, getting colder and colder, until we were nearly frozen despite sweaters, flannels and leather. It was so cold that our leather coats and caps froze as stiff as boards. That day we made about eight miles and slept by the side of a fallen tree, with a campfire burning on either side of us.

Monday morning we again pushed on after a scanty breakfast, for despite our hardship in the Cascade Mountains when we went without food for three days, we had not learned our lesson and only had a light supply of eatables with us on this mountain trip—which under ordinary conditions we figured would take about three hours. Everything went well until noon Monday, when our gasoline supply gave out. How far we were from a railroad or any habitation could only be surmised. Guided by our compass we left the car and in a blinding snowstorm made for the direction in which we supposed the railroad tracks were located. We couldn't find them and retraced our steps to our car, where we again camped out, finishing the last of our eatables.

That night the weather moderated some, and the snowstorm which had been raging all day stopped. By the aid of our campfire we managed to get our feet dry and slept that night quite warm. In the morning we again tried to locate the tracks and met a relief party searching for a rancher named Smith, whom they had just found dead within a mile of our last encampment. He had been frozen to death Sunday night. The searchers were also incidentally looking for us, for when I had telegraphed to the proprietor of the Commercial Hoted to get my letters and express on Friday night, he, knowing I had left Williams, figured we were lost in the storm somewhere on the mountains and so informed the searchers.

MEGARGEL FORDING A SMALL STREAM.

Gasoline was shipped in to us from Williams, and that night we slept at the section house at Bellemont, reaching Flagstaff about 2 o'clock yesterday afternoon. Despite the fact that the snow in places had drifted to a depth of four feet, the Reo *Mountaineer* came all the way under its own power, we refusing the offer of the relief party to ride in with them and tow our car after us.

Upon our arrival at Flagstaff, I found that seven persons were frozen to death during the nights we were out, most of them old ranchmen and mountaineers. Possibly it was because their matches gave out, but more likely because they did not have a little gasoline to start campfires with, for the wood was so wet and damp that without gasoline we never could have started a fire, and had we not kept a bright blaze all night we should certainly have shared the fate of the frozen ones.

Fassett, Vaughan and myself are none the worse for our experience, and you can depend upon it that the tonneau of the *Mountaineer* from this time forth carries fifty pounds of provisions—enough to last us for at least a week. With plenty of food and lots of matches and a little gasoline, we can bid defiance to the fiercest weather that visits the Arizona mountains, even if we are up in the air 7,600 feet.

Of course this delay places us far behind our schedule, and the snow, which has been falling for twenty-four hours, will hold us back. However, we expect to start eastward again this afternoon, snow or no snow, and hope to make Albuquerque by Christmas night.

Although the newspapers throughout the country have been printing, under terrifying headlines, accounts of the frozen New Yorkers, I can assure my friends that we are in excellent health, have retained our appetites, and at no time were we in any great danger, although automobiling on

THE "MOUNTAINEER" IN A SOUTHWESTERN ARROYO WITH A STIFF CLIMB AHEAD.

snow-covered mountain trails in freezing weather is not quite as enjoyable as a summer tour through Ohio, Indiana and Illinois.

PERCY F MEGARGEL.

Through Snow and Lava.

FLAGSTAFF, Arizona Territory, Dec. 17.—After a tedious climb of several thousand feet, the last forty miles being through snow more than a foot deep, we reached Flagstaff, the highest point on the Santa Fé railroad system in Arizona, late this afternoon. From here it will be gradually downhill for about 200 miles, and, although the snow is reported to be much deeper between here and Winslow than west of here, I have every confidence in the ability of the car to cope with it successfully.

One point east of here does worry me a little, and that is the Canyon Diablo or Devil's Canyon, about twenty miles east of Flagstaff. This canyon, 250 feet deep and 500 feet wide, is crossed by a single-track railroad trestle with neither guard rail nor outer planking. It is our only chance to cross unless the old Santa Fé trail crossing, many miles to the north, has been repaired. At last reports this trail down to the bottom of the canyon and up the opposite side had been entirely washed out, leaving the railroad trestle the only means of crossing. My hand is pretty steady at the wheel, but when it comes to crossing such a bridge, the wheels bumping over the railroad ties, and only six inches to spare on one side with a 250-foot fall if anything goes wrong, even a transcontinentalist must pause and do some thinking.

It has been our lot to have to sleep out several nights lately, and with the thermometer running down in the neighborhood of zero and our supply of bedding limited, it differs some from summer camping on the shores of Lake Ontario or Erie. It is usually quite warm and comfortable until about 2 A. M., when it begins to get colder and colder, and, despite the wood we pile onto the camp fire, we are all but frozen at sunup. The cold nights have one advantage—the roads are generally frozen so solid by daylight that it is easy wheeling for some hours, for running through either mud or soft, melting snow has a tendency to hold us back, and we are three days behind our schedule now.

This is all Indian country through which we are traveling now and every little town at which we stop has its suburbs filled with Indian shacks. The famous Navajo blankets are woven in and around Flagstaff and all manner of bead work, bows and arrows, Indian pottery and basket work are offered for sale at the country stores. The white inhabitants are all worked up over the proposed joining of New Mexico and Arizona territories to make one state. From the talk of ranchmen and townspeople, there will be a civil war if such a course is adopted by the government. "To be joined to a lot of ignorant 'greasers' is the worst fate that could possibly befall us," is the way the Arizonian puts it.

Since leaving Seligman we have encountered no sand to speak of, but have run into and through beds of lava rocks that would put any but the very best tires completely out of business, and even our Diamonds suffered. Time and time again we were obliged to stop, get out and build stone bridges across some boulder too large to straddle and so situated that it could not be dodged. Despite every precaution, the front axle and differential hit rock after rock, breaking the front truss rod, tearing away the pet-cock on the rear cylinder and bending the rear truss rod until it ceased to do its share toward supporting the rear axle. The trail had not been traversed for months, and in many places it ceases to exist at all, so that we had to pick out our own route, keeping the railroad track in sight as much of the way as possible.

At the town of Williams, where tourists by rail change cars to run up into the Grand Canyon of the Colorado, about sixty miles to the north, we listened last night to the story of a party that attempted to make the run in an automobile four years ago. The car was an old Toledo steamer, the manufacturing of which was long ago discontinued. It was originally intended for two passengers, but four managed to crowd in, carrying neither blankets nor provisions, expecting to make the run in about four hours. They made about twenty miles the first day and camped out for the night, going to sleep blanketless and supperless. That night it froze and the water cracked the steamer's pipes. The party kept on, however, and made about twenty miles further the next day, when the gasoline gave out. There was not a human being within twenty miles of them and they started to walk. Their trials and sufferings

PERCY F. MEGARGEL AND DAVID FASSETT, THE TRANSCONTINENTAL TOURISTS WHO NEARLY LOST THEIR LIVES IN A SNOWSTORM IN ARIZONA LAST WEEK, IN THE CAR IN WHICH THEY ARE "CIRUMNAVIGATING" THE UNITED STATES.

during an exhausting thirteen-mile walk with nothing to eat for two days and no water make a chapter in strenuous motoring that the cruise of the *Mountaineer* through thirteen states has been nothing to compare with. That was the first and last time an automobile has ever run to the Grand Canyon.

The automobile is not unknown even in these parts. One is owned at Needles, another at Williams, and Flagstaff boasts of two, yet the coming and going of the *Mountaineer* is looked upon as a matter of great interest by the inhabitants. Although only 16 horsepower and weighing about 1,500 pounds, it is the largest machine that has ever been seen, the autos owned here being all of the runabout type. Our frying-pan, "grub" box and sleeping blankets—articles so common to travelers in this section, yet so seldom heard of in connection with an automobile—are subjects for constant practical jokers to pun over, horsemen saying that the only safe way to travel by automobile is to carry blankets and food enough for days to come. Just how long the animals owned by these jokers would last on a 7,000-mile trip, such as our car has to its credit, is a matter for speculation.

Gasoline can be had at all the little towns through which we have passed with the exception of Peach Springs. Here we expected to replenish the tanks, but not a drop could be got. We wired to Seligman to put a case on on the first freight out, which was done and we were held up for only about seven hours. Lubricating oil, however, is a different matter, and I would strongly advise tourists to ship what they need into this country before starting on a tour. The Standard Oil Company, at Los Angeles, booked our order for the entire trip East, sending supplies to designated places along the Santa Fé from Los Angeles. Later shipments will be from Denver, Kansas City, St. Louis and Philadelphia. It would be a serious matter to run out of lubricating oil in Arizona, although Williams is only twenty-four hours distant by express from Los Angeles.

The performance of our little car through deep snow has certainly surprised its crew. A foot of snow, when frozen more or less solid, seems to have little or no effect on our speed, and we plough through the soft snow without any great effort. It is certainly much to be preferred to the deep sand, although the car behaved gallantly in crossing the several hundred miles of desert last week.

PERCY F. MEGARGEL.

Pieces of wood fixed to the front steering rod are very commonly used in France to prevent the rod from being damaged. For example, if the car accidentally runs over a dog, an unprotected rod might easily get bent or even broken. The wood battens help to diminish the force of the contact.—*The Autocar.*

Complete List of Chicago Show Exhibitors.

CHICAGO, Dec. 23.—Samuel A. Miles, general manager of the Chicago Automobile show, which is to be held from February 3 to 10, at the Coliseum and First Regiment Armory, returned from New York during the early part of this week. He said that no more applications for space could be accepted, as the space was all taken but that if, by any chance, a few more feet could be found any place in the buildings, those on the waiting list would be accommodated.

It is the opinion here that the coming show will be the largest automobile exhibition ever held in America, and strenuous efforts are being made to make the two buildings as attractive as possible.

Mr. Miles has given out the official list of exhibitors, which is practically complete, as follows:

COLISEUM, MAIN FLOOR.

Apperson Bros. Automobile Co., Autocar Co.

Baker Motor Vehicle Co., Bartholomew Co.

Cadillac Motor Car Co., Corbin Motor Vehicle Co.

Duryea Power Co.

Electric Vehicle Co., Elmore Manufacturing Co., H. H. Franklin Manufacturing Co., Ford Motor Co.

Haynes Automobile Co., Holsman Automobile Co.

T. B. Jeffery & Co.

Knox Automobile Co.

Locomobile Co. of America.

Mitchell Motor Car Co.

National Motor Vehicle Co., Northern Manufacturing Co.

Olds Motor Works.

Packard Motor Car Co., Peerless Motor Car Co., Geo. N. Pierce Co., Pope Manufacturing Co., Premier Motor Manufacturing Co.

Reliance Motor Car Co., Royal Motor Car Co.

F. B. Stearns Co., J. Stevens Arms and Tool Co., St. Louis Motor Car Co., Studebaker Automobile Co.

E. R. Thomas Motor Co.

Waltham Manufacturing Co., Wayne Automobile Co., Winton Motor Carriage Co., Woods Motor Vehicle Co., White Sewing Machine Co.

COLISEUM ANNEX, FIRST FLOOR.

Auburn Automobile Co., Austin Automobile Co.

Buick Motor Co.

Chicago Automobile Manufacturing Co.

Jackson Automobile Co.

Pierce Engine Co., Pungs-Finch Automobile and Gas Engine Co.

Tincher Motor Car Co.

Vehicle Equipment Co.

Welch Motor Vehicle Co.

COLISEUM ANNEX, SECOND FLOOR.

Automobile Supply Co., Aerocar Co.

Beckley-Ralston Co.

Cook Railway Track Appliance Co., Continental Caoutchouc Co., Columbus Buggy Co., Chicago Pneumatic Tool Co., Cullman Wheel Co.

Dac Automobile Supply House, Dayton Folding Tonneau Co., Dorris Motor Car Co., Joseph Dixon Crucible Co., Duff Manufacturing Co.

Excelsior Supply Co.

Gaulois Tire Co.

Hendee Manufacturing Co.

Imperial Brass Manufacturing Co.

Knobloch-Heidman Manufacturing Co.

London Automobile Supply Co., Limousine and Carriage Manufacturing Co.

Manhattan Storage Co., Mason-Kipp Manufacturing Co., Motor Car Equipment Co., Motor Car Co.

North Chicago Machine Co., Nordyke & Marmon Co.

Railway Appliance Co.

Sherwin-Williams Co., Samson Leather Tire Co., Standard Carriage Lamp Co.

Universal Storage Battery Co.

Volta Battery Co., Vesta Accumulator Co.

Windsor Automobile Co., Whiteley Steel Co.

COLISEUM, GALLERY.

American Electric Novelty and Manufacturing Co., Atwood Manufacturing Co., Aurora Automatic Machinery Co., Autocoil Co.

Badger Brass Manufacturing Co., Baldwin Chain and Manufacturing Co., Belden Auto Transmission Co., Brown-Lipe Gear Co., Brennan Manufacturing Co., William H. Brown, S. F. Bowser & Co., Briscoe Manufacturing Co., Byrne, Kingston & Co.

Consolidated Manufacturing Co.

Detroit Motor Car Supply Co., Detroit Steel Products Co., Diamond Rubber Co., Diamond Chain and Manufacturing Co., R. E. Dietz Co., Dayton Electric Manufacturing Co.

Edmunds & Jones Manufacturing Co.

Firestone Tire and Rubber Co., Fisk Rubber Co.

Gabriel Horn Manufacturing Co., B. F. Goodrich Co., Goodyear Tire and Rubber Co., Gray & Davis, G. & J. Tire Co.

Hartford Suspension Co., A. W. Harris Oil Co., R. E. Hardy Co., Hartford Rubber Works Co., Hyatt Roller Bearing Co., Hine-Watt Manufacturing Co.

International A. & V. Tire Co.

Jones Speedometer.

Long Manufacturing Co.

McGiehan Manufacturing Co., McCord & Co., Morgan & Wright, Motsinger Device Co.

N. Y. and N. J. Lubricants Co., National Carbon Co.

Oliver Manufacturing Co.

Pennsylvania Rubber Co., Pantasote Co., Prest-O-Lite Co.

Rose Manufacturing Co., Republic Rubber Co., Remy Electric Co.

Spicer Universal Joint Manufacturing Co., Swinehart Clincher Tire and Rubber Co., Standard Oil Co., Standard Roller

Bearing Co., Schwarz Wheel Co., C. F. Splitdorf, Shelby Steel Tube Co., Sprague Umbrella Co., Steel Ball Co.

Timken Roller Bearing and Axle Co., Tokheim Manufacturing Co.

Valentine & Co., Veeder Manufacturing Co.

Weed Chain Tire Grip Co., Wheeler Manufacturing Co., Webb Co., Warner Gear Co., Warner Instrument Co., Whitney Manufacturing Co., Wray Pump and Register Co.

ARMORY, MAIN FLOOR.

Adams Co., Acme Motor Car Co., Auto Importing Co., American Locomotive Motor Car Co., American Motor Truck Co.

Buffalo Electric Carriage Co., Buckeye Manufacturing Co., C. H. Blomstrom Motor Co., Berkshire Automobile Co.

Cleveland Motor Car Co.

John L. Dolson & Sons, Daimler Manufacturing Co., Dayton Motor Car Co.

English Daimler Co.

Knight & Kilbourne, Kansas City Motor Car Co.

Logan Construction Co., Lozier Motor Co.

Oscar Lear Automobile Co.

H. Sargent Michaels Co., Moon Motor Car Co., Marion Motor Car Co., Maxwell-Briscoe Motor Co., Moline Automobile Co., McCrea Motor Truck Co.

Palais de l'Automobile, Panhard & Levassor.

Reo Motor Car Co., Rapid Motor Vehicle Co., Rainier Motor Vehicle Co.

Synnestvedt Machine Co., Smith & Mabley, Soules Motor Car Co.

Ralph Temple.

Western Tool Works.

ARMORY, GALLERY.

American Lamp Co., Auto Accessories Manufacturing Co., Eugene Arnstein.

Culver Novelty Co., Chicago Caloric Engine Co.

Gearless Transmission Co.

Hancock Manufacturing Co., Hutchison Electric Horn Co., Hicks Speed Indicator Co.

Kinsey Manufacturing Co.

Look Electric Co.

Milwaukee Rubber Works Co., Michelin Tire, American Agency, J. B. McKeague.

P. Reilly & Sons.

Speed Changing Pulley Co.

Tritt Electric Co.

Ventilated Cushion Co.

Way Muffler Co.

Club Show in Armory.

The new armory of the Sixty-ninth Regiment, which will be opened to the public for the first time on January 13, on the occasion of the sixth annual automobile show of the Automobile Club of America, is well suited for exhibition purposes and is in many ways an interesting structure. Perhaps the chief feature is the great area of the main floor—189 feet by 202 feet, without pillar or other obstruction. Roof and walls are composed of a huge semi-cylinder supported on six steel arches; the maximum height from floor to arches is 100 feet. The building is as nearly fireproof as the architects can make it. Light is admitted through a very large skylight in the roof, and numerous arc and incandescent lights will be used at night. The rear end of the building is closed by a brick wall, while at the front is a four-story brick building in which are company rooms, offices and so on; entrance to the drill hall is by way of an enormous brick arch 90 feet wide and 68 feet high, said to be the largest arch of its kind in the world. A basement extends under all parts of the hall and the administration building, except for an unexcavated space in the middle of the hall. A gallery 18 feet wide runs around the drill hall and is supported, without the use of pillars, at a good height above the main floor. The total floor space is 152,000 square feet. An inspection of the new building will add an interesting feature to a visit to the automobile show, as will also the exhibit of the Aero Club of America, consisting of dirigible balloons, ordinary balloons, aeroplanes, kites, motors, parachutes and other aerial apparatus, besides a collection of samples of fabrics, cordages, varnishes, and other materials used in the construction of balloons and the like.

Florida, Then Cuba.

Arrangements for the 1906 Florida Automobile Tournament are progressing satisfactorily and some fine racing is anticipated. The program of events was published in full in THE AUTOMOBILE for November 2. Though a number of reports as to entries have been circulated, no official announcement on this subject has been made, according to W. J. Morgan. "Yes, there are a lot of stories about the entry list," said Mr. Morgan, in reply to the inquiry, "but I don't know where they came from; certainly not from this office. The list will not be made public until it closes on January 8. There is also a great deal of talk about the two-mile-a-minute cars that will congregate on the beach, but I guess it won't take a mathematician to reckon them all up by the time the tournament is over. It's always that way before any important event; cars possessed of amazing speed seem to spring out of the earth, but somehow very few get as far as the starting line."

It is rumored that the special Stanley steamer built for the Florida tournament will not be entered, owing to a disagreement between the builders and Ross, who was to drive it. Much is expected of the machine in the way of speed, and if it does not appear on the beach there will be a good deal of disappointment among steam enthusiasts. Ross is the present holder of the Dewar cup for one mile, having won the trophy with his steam racing car at the last Florida beach tournament.

Arrangements for the Cuban road race, which takes place after the conclusion of the Ormond-Daytona beach tournament, are well under way, and entry blanks for the road race and the shorter races that will complete the program have been issued. The course will cover a 57-mile circuit of excellent roads and will probably be oiled, an appropriation of $5,000 having been made by the Havana city council for that purpose. The starting point will be seven miles nearer the city of Havana than was the start of the last Cuban road race, and will be within reach of the trolley lines. Camp Columbia, the American barracks, will be used for garages, training camps and residences by some of the visitors. Entry blanks for the Palm Beach auto-boat regatta have also been sent out by Mr. Morgan.

Detailed information and entry blanks for the Ormond-Daytona beach tournament, the Cuban races and the Palm Beach auto-boat regatta, may be obtained from W. J. Morgan, 116 Nassau street, New York.

Motorcycle Hour Record.

PARIS, Dec. 12.—A motorcycle record of 63.6 miles an hour has been made by Guippone at the Parc des Princes indoor track in Paris.

From a standing start, on a 12-horsepower Peugeot motorcycle of 90 mm. bore and 100 mm. stroke, the first ten kilometers were covered in 5:34 4-5. Fifty kilometers (31 miles) were covered in 29:01 3-5, and in the first half hour 32.024 miles were accomplished. One hundred kilometers (62.1 miles) were accomplished in 58:38 1-6, and the same speed was maintained until the sixty minutes had elapsed, when a total distance of 63.609 miles was covered.

The Parc des Princes track on which the record was made is good up to a mile-a-minute speeds, but beyond this it is dangerous, and the performance is therefore all the more to the credit of both driver and machine.

For a long time the Peugeot firm has been preparing for this record, and minute attention was given to every detail of construction of the machine. The motor is the one which won this summer on the Dourdan Circuit, but the frame was especially constructed to resist the enormous strain to which it would be subjected. The belt and tires, too, were of special construction, the latter being by Lion-Wolber. An average speed of just over seventy miles an hour was the rate on the fastest round, the track measuring just 137-1,000ths of a mile in circumference a yard from the pole.

The old record belonged to Anzani, who covered 58.27 miles in the hour.

Bluish colored rubber is used in France for floor mats in automobiles because it does not show the stains of grease, oil and dirt as white rubber does.

Grand Prix for 1906.

PARIS, Dec. 14.—No time has been lost by the Automobile Club of France in making arrangements for the big road race next year. The event has not yet been named, but popular opinion has christened it the "Grand Prix," though some would prefer the title of "World's Championship," in view of the fact that the club desires it to be the most important race of the whole world. At a meeting of the Sporting Commission held yesterday it was decided, after a long discussion, that all repairs or changes of tires must be done by the driver and his mechanic; the filling of gasoline, water or oil tanks, as well as all changes of spare parts, must also be done by the driver and mechanic. Repair stations and gasoline stores can be established around the circuit as heretofore, but none but the two men on the car will be allowed to touch it for any cause whatever from the start to the end of the race; commissioners will be stationed at each post to see that this regulation is faithfully carried out. The number of cars for each factory has been fixed at four, but the commission retains the right to reduce this number to three if engagements are very numerous. In every case not more than four cars in all will be allowed different firms constructing the same car under license.

It is very probable that a circuit in the forest of Fontainebleau, about thirty miles south of Paris, will be chosen for the big race. The Sporting Commission has considered the proposal at its last meeting and decided to visit the district next Sunday. Should the circuit appear suitable, it will be at once selected, and formalities immediately entered upon to secure it for the race. Other likely circuits are Ardennes, the Auvergne, and the Aix-les-Bains. The 1905 Gordon Bennett circuit is not very popular on account of the heavy expense that would be entailed in reconstructing grand stands and foot bridges in a mountainous country miles from any town. Aix-les-Bains would necessitate neutralizations, and the Ardennes are a long way from Paris.

Fontainebleau has everybody's favor; the roads are hard and well made, wide and straight, and include two or three hill climbs. Starting just outside the interesting old town, the road runs northwards through the forest towards the town of Melun, bends back on itself and, after branching off towards the west, arrives again at Fontainebleau. From this point it makes a triangular run to the southwest of the town, and after this a short circular run to the southeast. The total distance is about fifty-three miles through the most magnificent forest land in all France; there would be no grade crossings and neutralizations whatever. The center of the circuit would be Fontainebleau standing in the middle of the forest of the same name, and the circuit really consists of three circuits starting from this common center.

At the points where the road crosses itself there is sufficient space to construct barriers so as to divide the meeting places into individual tracks. Being so near the capital, enormous crowds would witness the race, and it is proposed to cover the expenses by making a charge to approach the road. As most of the land belongs to the government, this would be quite possible.

The date of the Grand Prix race will be between June 15 and July 25, and the entrance fee will probably be $1,000 for each car.

There is every danger of the Tire race being killed by the Grand Prix. Officially the three events—Tire race, European circuit and Grand Prix—are to constitute the club's program for 1906, but enthusiasm in the first named event has dropped down to zero and nobody would be surprised if it were abandoned entirely.

Short Drives in New Jersey.

NEWARK, Dec. 26.—The weather this fall and early winter has been so extraordinarily mild and dry that automobilists have been able to use their cars for pleasure riding uninterruptedly up to the present time. There has been so little cold weather that the frost has not injured the macadam roads to any appreciable extent, and both metropolitan motorists and those residing in Newark and the Oranges have been seen on the roads in large numbers.

Because of the poor approaches to Newark—over the turnpike and the plank road across the Jersey meadows—many New York automobilists are deterred from venturing into this territory, but those who cover the uninteresting strip separating Newark from Jersey City find themselves amply repaid when they reach Newark and begin to glide over the smooth thoroughfares that stretch out in every direction in Union, Morris and Essex counties.

The trip to Morristown is as popular a drive as any at this season of the year. That city, said to represent more wealth than any other municipality of its size around New York, can be reached in two ways: One route is along Broad street, Newark, into which both the turnpike and plank road lead, to Clinton avenue as far as Irvington, at which place one should follow Springfield avenue to Milburn.

A mile or so west of Milburn the fine macadamized Morristown turnpike crosses Springfield avenue. This road runs through both Union and Morris counties, and takes the automobilist into Chatham, Madison and Convent. Hobart's Hill, a steady incline that can be taken quite easily on the high gear, is the only elevation of any consequence to be met with on this run.

Or one may go to Elizabeth by way of Frelinghuysen avenue, and follow Morris avenue to Springfield, where the road merges into the Morristown pike.

From Morristown one may drive on to Dover or Lake Hopatcong, or south to Mendham and Bernardsville. The roads to all three places have been in prime condition this season, and the run to Bernardsville is interesting to those with a liking for architecture because of the many costly suburban residences to be seen along the way.

Another pleasant trip is to Plainfield by way of Elizabeth and Westfield. The best road is Morris avenue, which should be followed as far as the old historic Meeker Inn, where a turn to the south should be made. A stop off at Baltusrol, where golf links renowned all over the country are located, may be made. Many local autoists have this fall taken the trip to Montclair, Caldwell and Whippany, and then gone on to Bernardsville. There are several good lunching places on this route as well as repair shops.

Morris county has borne an unsavory reputation among automobilists because in the past the county officials have seen fit to enforce the speed regulations so rigorously that their action has amounted to persecution. It is said that more tolerance is now being shown.

The ride to Trenton, and then on to Camden, can now be taken over one continuous stretch of macadam, the completion of the New Brunswick-Franklin Park road and the Kingston extention having made that possible. The two gaps were all that interrupted an almost continuous stone road from this city to Camden by way of Elizabeth, Rahway, New Brunswick, Franklin Park, Princeton and Trenton. There is now a stone road direct to Princeton which shortens the distance between New York and Philadelphia. It is no longer necessary to go to Trenton by way of the Cranbury turnpike.

New York leads in the number of automobiles as evidenced by the fact that from 1901, when the present law went into effect until the first day of November, more than 23,000 automobiles were registered with the Secretary of State, the registration fees at $2 each amounting to $46,000. It has long been the cry of automobilists opposed to this form of taxation that they would not object to $5 or even $10 a year, provided all the money went for road improvement.

Hotel proprietors who wish to be up-to-date must include as a part of their equipment one or more automobiles which can be placed at the disposal of their guests. In all of the large summer resorts steps have been taken to secure such vehicles, and automobile parties are expected to be the fashion next summer. At many of the winter resorts along the coast of Florida, where fine roads stretch for miles along the shore, a fully equipped automobile has become almost a necessity if one expects to be in style.

Moggs—"Did you come all the way on your direct drive?"

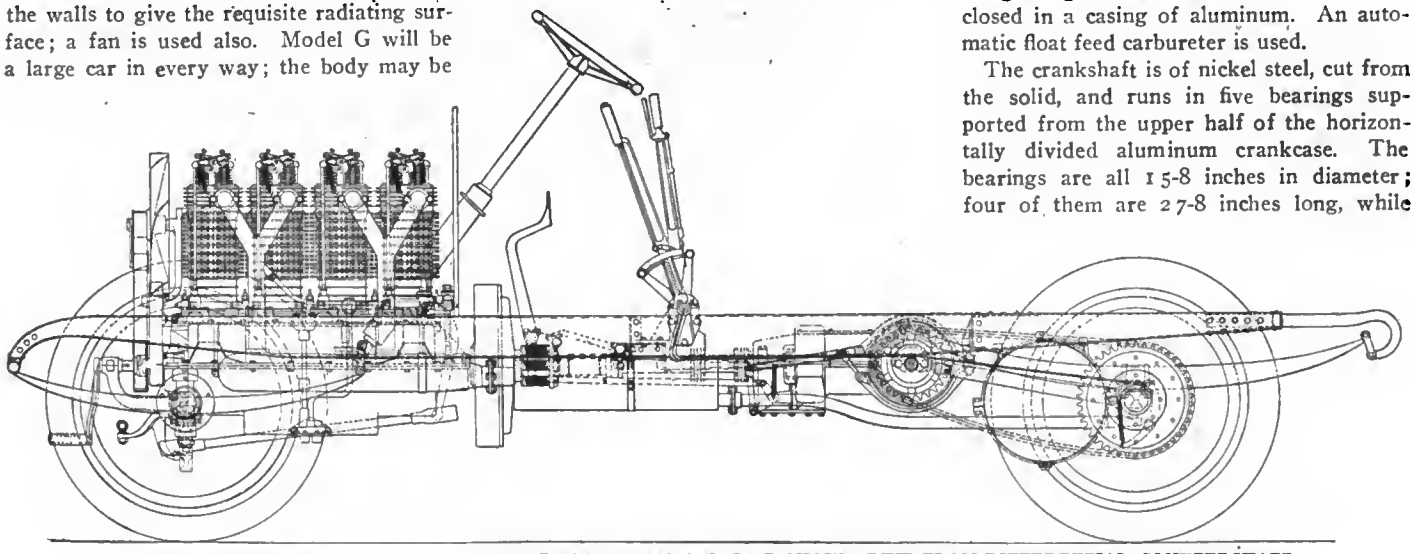
Boggs—"No. We came by a roundabout route."—*Motoring Illustrated.*

Knox Air-Cooled Motor-in-Front Car.

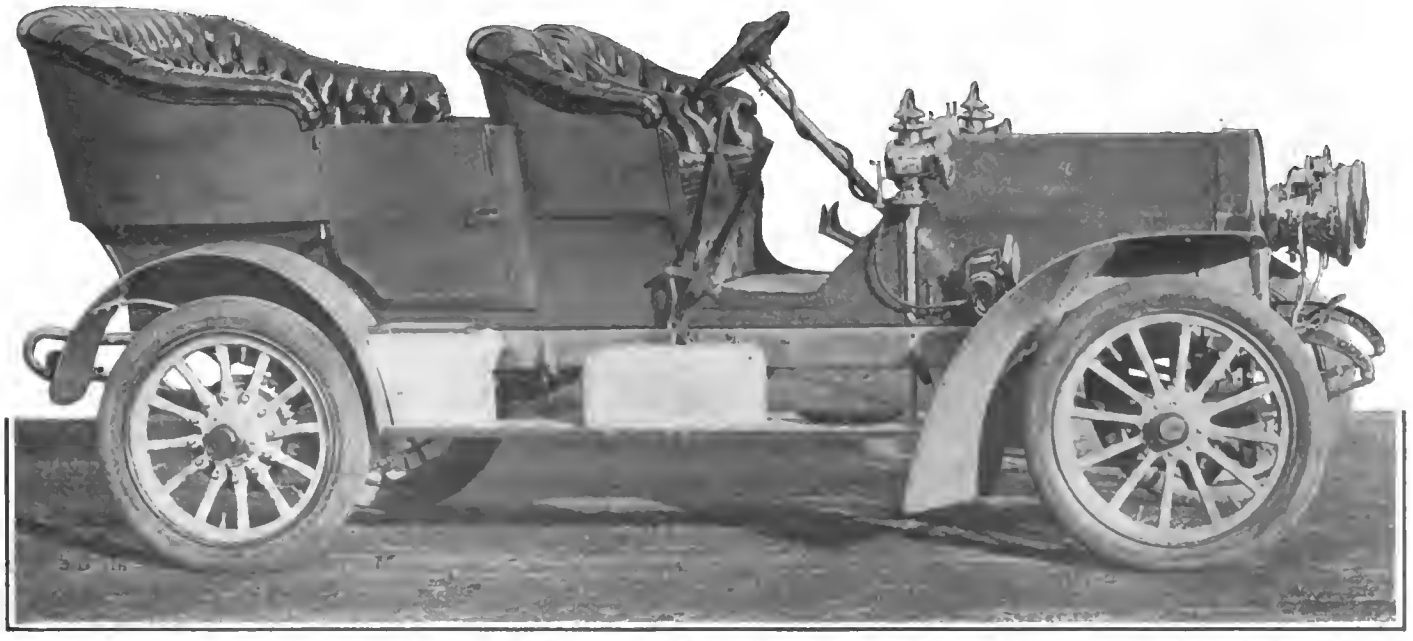
A NEW high-powered touring car with a vertical air-cooled motor in front will be the most interesting of the 1906 pleasure cars manufactured by the Knox Automobile Company, of Springfield, Mass. The new machine, which will be known as Model G, will have a four-cylinder engine rated at no less than 35-40-horsepower, the cylinders being built after the well-known Knox plan, with threaded pins screwed into the walls to give the requisite radiating surface; a fan is used also. Model G will be a large car in every way; the body may be a straight-line tonneau, a *Roi des Belges*, or a limousine, the chassis being the same in all cases. With touring body the car will weigh approximately 2,800 pounds; the distance between the axles will be 112 inches. The tonneau will seat five persons—three in the regular rear seat and two on folding seats facing backward, giving a total seating capacity of seven persons. The limousine will carry six passengers, the closed body having seats for four. Transmission is by sliding gears, giving four speeds forward and a reverse, all controlled by a single selective lever; drive is by side chains. Practically all bearings, except those in the motor proper, are imported non-adjustable ball bearings.

The four-cylinder motor has separately cast cylinders to permit the insertion of the characteristic Knox threaded pins. Valves are mechanically operated and are placed in the cylinder heads; they are all 2 inches in diameter, all alike and interchangeable, forged from a special grade of nickel steel, each valve a single piece. Each valve is set in a cage which may be removed without disturbing any other parts by unscrewing a single nut. The exhaust valves have a lift of 3-8 inch and the inlet valves 1-4 inch. Two camshafts are used, one on each side of the engine. The one on the right-hand side carries the inlet cams and the other the exhaust cams; long push-rods extend upward from the cams and operate the valves through rocker arms pivoted on brackets attached to the cylinder heads. Each camshaft runs in three bronze bearings lubricated from the crankcase; a cast aluminum cover over each camshaft may be taken off by removing the holding down bolts, and the camshafts may be removed through the openings thus provided. The inlet camshaft carries the gear for driving the magneto employed to furnish the ignition current; the gearing is of steel and bronze and is enclosed in a casing of aluminum. An automatic float feed carbureter is used.

The crankshaft is of nickel steel, cut from the solid, and runs in five bearings supported from the upper half of the horizontally divided aluminum crankcase. The bearings are all 1 5-8 inches in diameter; four of them are 2 7-8 inches long, while the fifth, at the flywheel end, is 4 inches long. Crankpin bearings are 1 3-4 inches in diameter and 2 1-2 inches long. Pistons are 6 inches long and are fitted with three packing rings each. Hardened steel is employed for the piston pins, which are 1 inch in diameter and afford a bearing 2 1-2 inches long for the piston end of the connecting rod; the pins are hollow. The bearings at both ends of the connecting rods are of bronze; the rods are 11 inches long from



CHASSIS OF KNOX MODEL G, SHOWING VERTICAL ENGINE AND SIDE CHAIN DRIVE FROM DIFFERENTIAL COUNTERSHAFT.



KNOX MODEL G STRAIGHT-LINE TOURING CAR, WITH 35-40-HORSEPOWER FOUR-CYLINDER VERTICAL AIR-COOLED ENGINE IN FRONT.

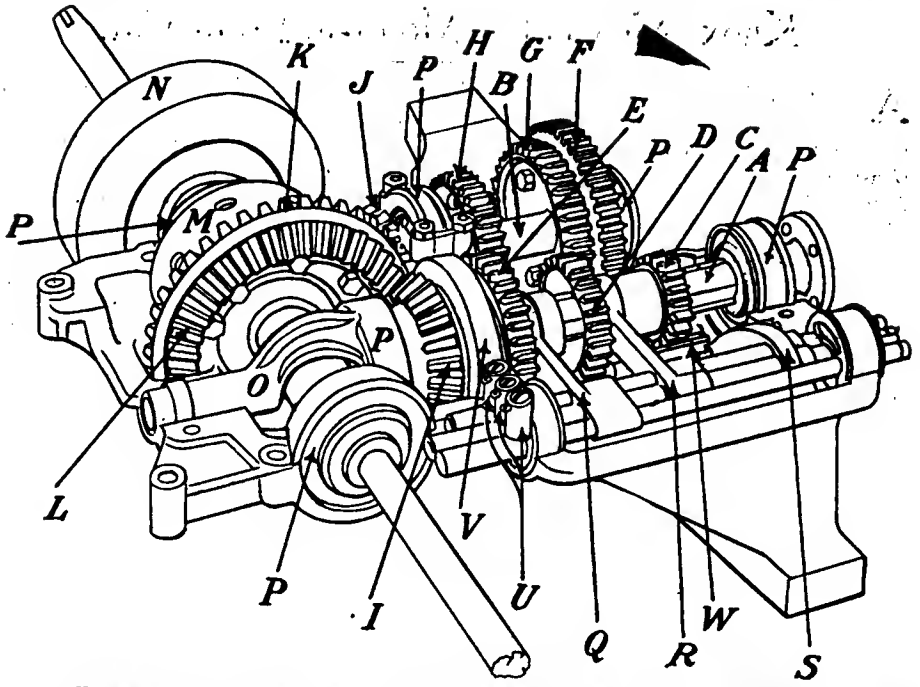
center to center. The cylinders have a bore of 4 3-4 inches and a stroke of 5 1-2 inches.

The jump spark ignition system includes a low tension magneto, the current from which is passed through a coil to induce the high-tension current required to jump the gaps between the sparking points of the plugs; a secondary distributer, which forms part of the magneto, sends the current to the plugs in rotation. The magneto is driven by spur gearing from the inlet camshaft. A battery of dry cells is carried as an auxiliary source of current supply.

Four arms are cast one on each corner of the upper half of the crankcase, and by these the motor is supported directly on the main side frames of the car. The lower half of the crankcase is removable and is subjected to no stress when in position.

The clutch is of the cone type, but differs from the majority of cone clutches in having metal-to-metal friction surfaces and in being enclosed in an oil-tight casing attached to the flywheel, so that the clutch runs constantly in oil. The manufacturers state that it is practically impossible to "jump" the car with this clutch, as the film of oil between the surfaces prevents a too sudden engagement. There being little chance for leakage, only a small quantity of oil need be placed in the clutch casing each week.

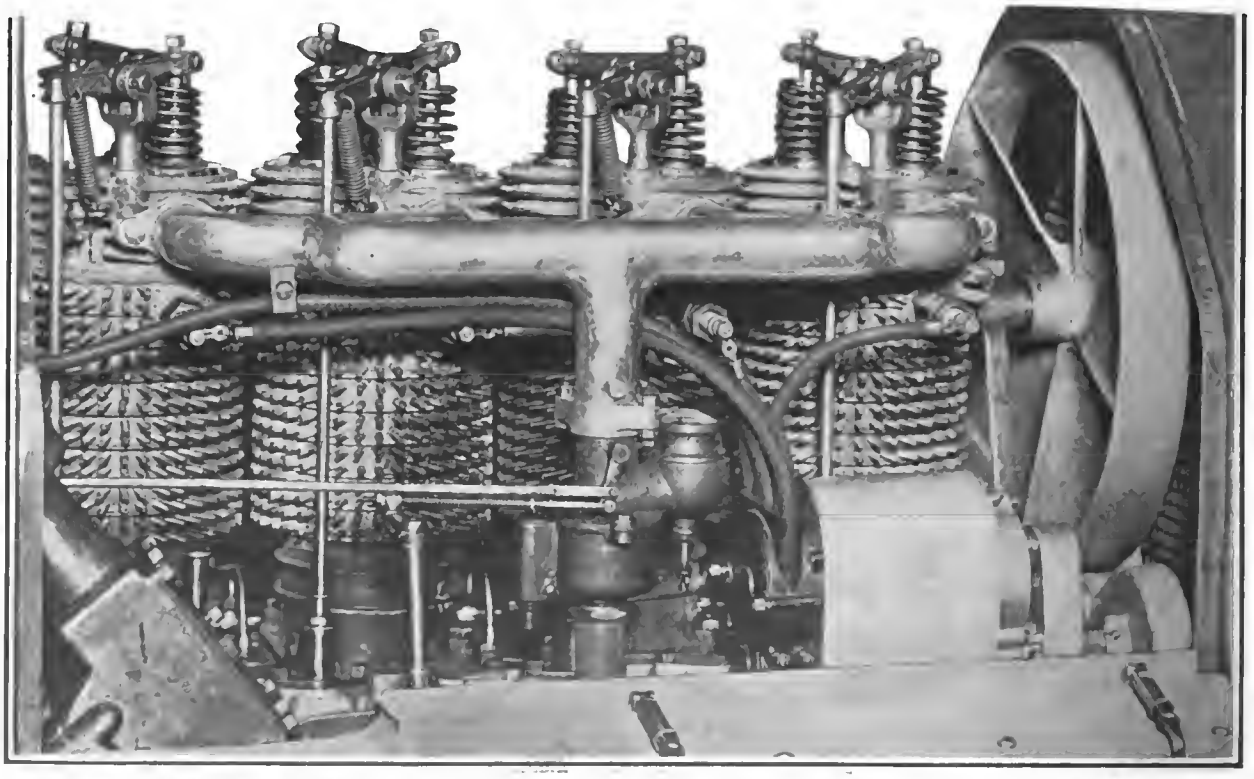
A sliding gear transmission, of the selective type, gives four forward speeds and one reverse. Non-adjustable ball bearings are used throughout the transmission. The shafts are of nickel steel having a tensile strength of 120,000 pounds to the square inch, while the gears are of chrome nickel steel with a tensile strength of 175,000 pounds to the square inch. The aluminum gearcase is horizontally divided at the center, and the upper half is fitted with removable covers.



KNOX FOUR-SPEED SLIDING GEAR TRANSMISSION AND BEVEL GEAR DRIVE.

A, Primary shaft with four feathers. B, Secondary shaft. C, Sliding gear giving first speed when meshed with F. D, Gear giving second speed when meshed with G. E, Gear giving third speed when meshed with H. Drive on first, second and third speed is through bevels J and K, bevel I running idle. For direct drive, E slides into an internal gear cut in V, the latter being integral with bevel I. On direct drive shaft B and its gears run idle, only the bevels being in mesh. L, Bevel gear for high-speed drive. P P P P P P, Non-adjustable ball bearings. W, Reverse pinion, meshes with C and F when in operation. Q, R, S, Shifting forks secured to shifter bars. U, Casing containing balls pressed by springs into notches in shifter bars to hold gears in or out of mesh. O, Brace for ball bearing for pinion I. M, Differential casing. N, Drum for service brake.

A feature of the Knox transmission gear is that the usual divided shaft, with one part running in a bearing formed within the other part, is not used, both primary and secondary shafts being solid from end to end, short, stiff and of good diameter. The drive is direct on the high speed. There are two bevel gears placed back to back on the jackshaft; one is permanently meshed with a bevel pinion on the secondary shaft and is used for first, second and third speeds and reverse. The other meshes with a pinion containing the clutch for the high-speed drive, and is used for the high speed



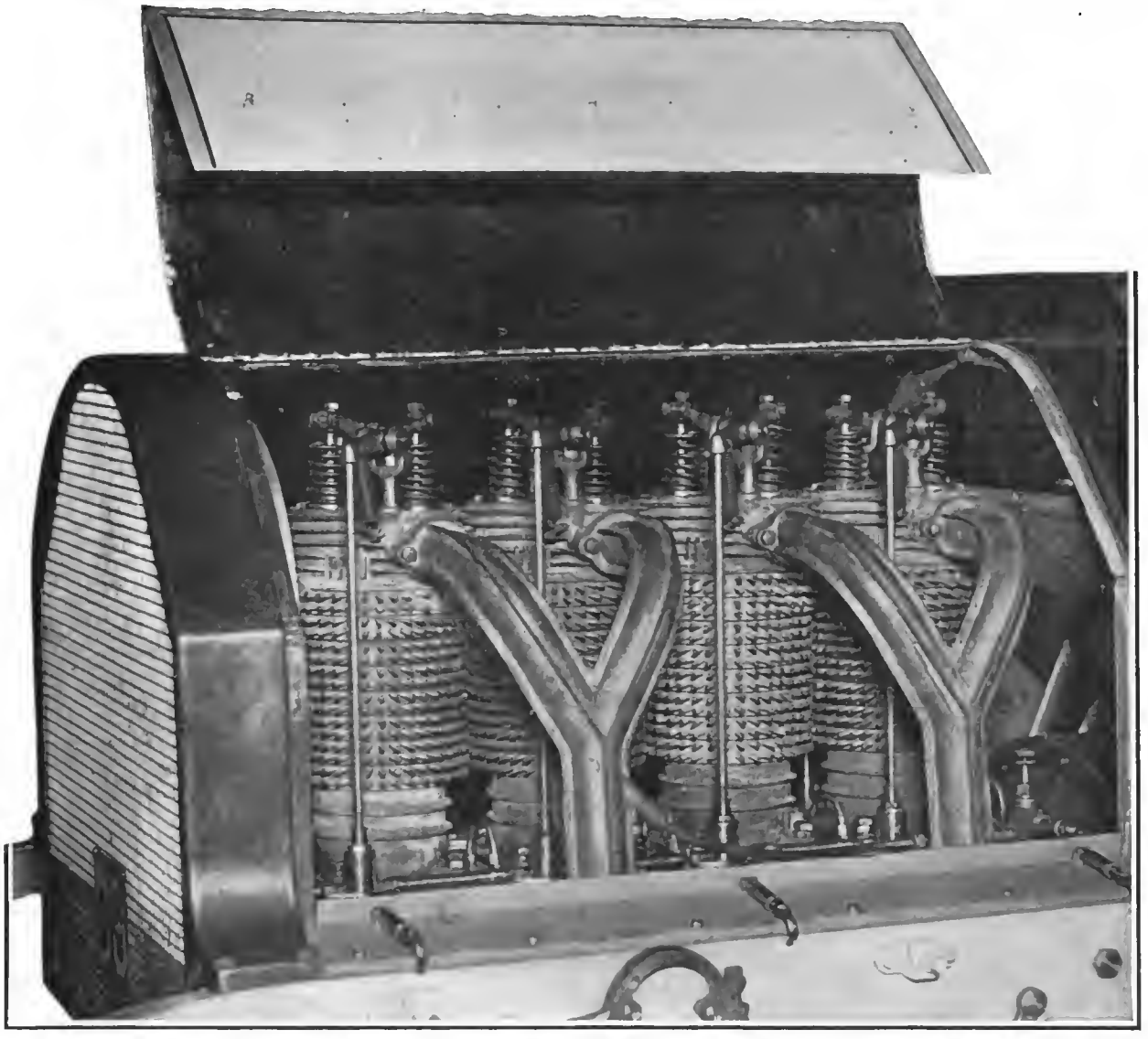
INLET SIDE OF KNOX ENGINE, SHOWING CARBURETER, SPARK PLUGS, MAGNETO AND VALVE RODS.

only, the secondary shaft revolving idly when the high speed is engaged. By means of a locking device the gears not in use are securely held against movement, only the gear with which the hand lever is connected being free to slide. The differential, of the bevel gear type, is enclosed with the bevel gears driving the jackshaft in a rearward extension of the gearcase; tubular lateral extensions of the gearcase enclose the jackshaft and carry at their outer ends the non-adjustable ball bearings of the sprockets from which the side chains run.

Steering gear is of the screw and nut type, heavily made, with large wearing surfaces; the connections are hand forged from nickel steel, and the joints are of the ball-and-spring pattern, covered by leather casings. Throttle and ignition levers are mounted over the steering wheel, while a pedal accelerator is fitted.

The side members of the pressed steel frame are without offset; they are five inches deep, 1 1-2 inches wide and 5-32 inch thick at the center, tapering toward each end to meet the spring horns, which are semi-elliptic, 2 inches wide; those in the rear are 54 inches long, while the front springs are 42 inches long. Wheelbase is 112 inches and tread 56 inches, standard width.

The lubrication of the engine is accomplished by a special system which, the manufacturers state, gives better results than the splash method. A rotary oil pump, driven by spiral gears from the exhaust camshaft, is located in an oil well in the bottom of the crankcase of the engine, and from this pump leads carry the oil to all bearings of the motor, including the crankpins; the hollow



EXHAUST SIDE OF KNOX 35-40-HORSEPOWER FOUR-CYLINDER VERTICAL AIR-COOLED ENGINE.

For regular service braking there is a metal-to-metal band and drum brake on the differential, enclosed in the same casing with the gears; this is operated by a push-pedal. The emergency brake is of the internal expanding type, the shoes working in drums attached to the rear hubs, and is applied by a hand lever. The brakes are substantially proportioned, and either is sufficiently powerful to slide the wheels of the car. The foot brake can be disconnected from the clutch by the removal of one bolt, so that those who desire to brake with the engine may do so.

hand forged from the same grade of nickel steel that is used for the axles. The axles are forged from nickel steel of 120,000 pounds tensile strength, and are both of I-beam section 2 inches deep and 1 1-2 inches wide. Each is forged from a single piece of steel, and after forging is oil tempered and annealed. The steering pivots and levers are forged in one piece from the same steel.

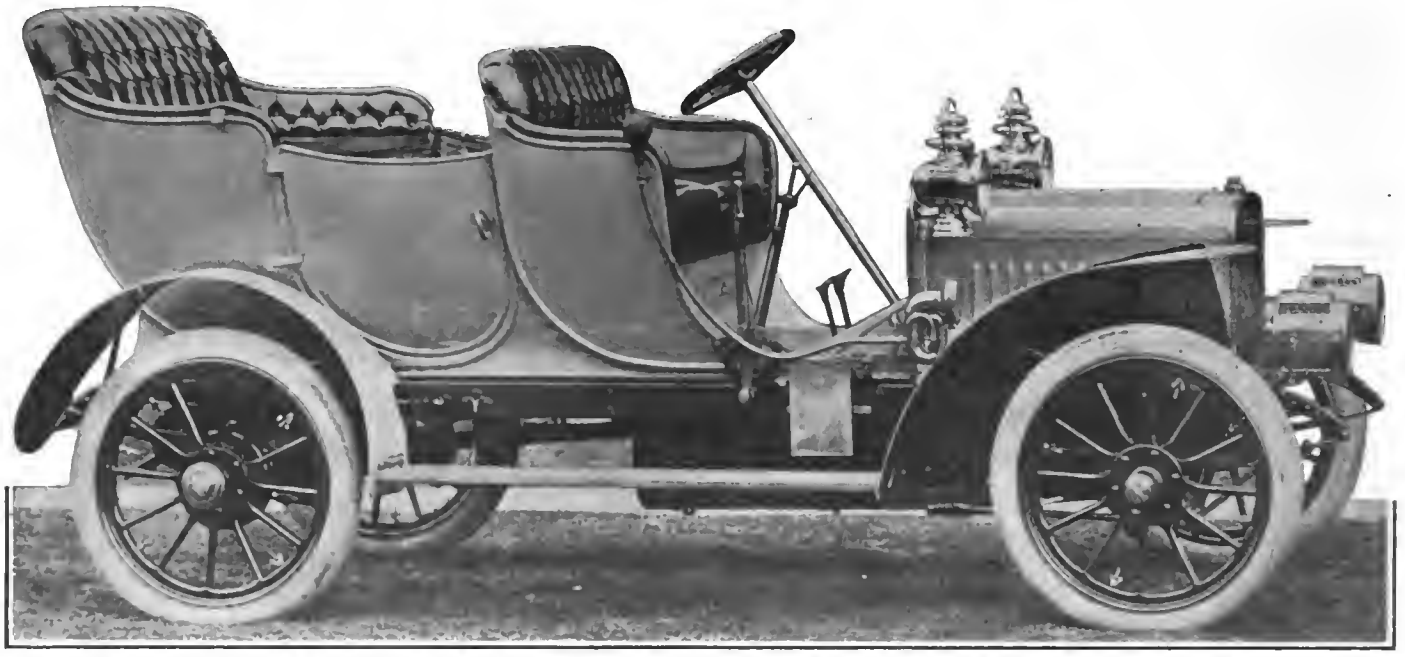
The wheels are 34 inches in diameter and, as has already been stated, run on non-adjustable ball bearings, The rear wheels are fitted with 4 1-2-inch tires and 4-inch tires are used in front. All the springs are

connecting rods are employed to convey oil to the piston pins and to the cylinder walls. The pump is of such size that a considerable excess of oil is raised; the surplus runs from the bearings back into the oil well, where it is strained and again taken up by the pump and so kept in circulation. A pressure indicator and a pressure regulating valve for the lubricating system are placed in plain sight on the dashboard, so that the pressure of the oil feed may be adjusted by the driver.

The new Knox car will be exhibited at the Madison Square Garden show.

Cleveland 30-35 Horsepower Model F.

FOR the season of 1906 a practically new model will be placed on the market by the Cleveland Motor Car Company, of Cleveland, O., under the designation Model F. The new machine will be a four-cylinder touring car of 30-35 horsepower, and will retain a number of features that gave satisfaction in the 20-horsepower car built by the company for 1905.



CLEVELAND CAR FOR 1906, MODEL F, WITH 30-35-HORSEPOWER MOTOR, SHAFT DRIVE AND VICTORIA BODY.

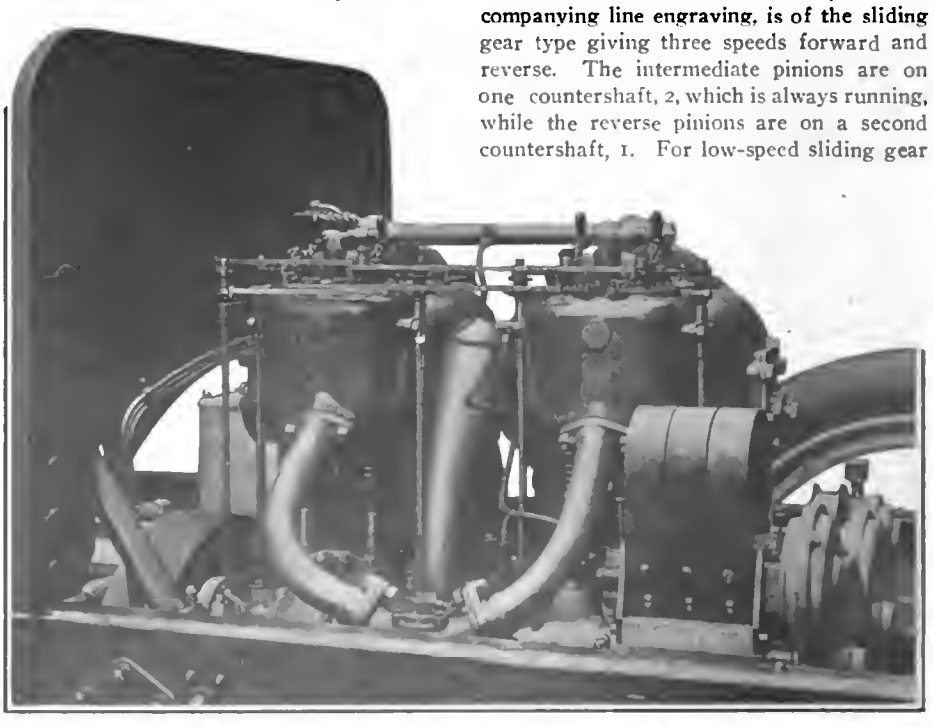
Among the important changes is the adoption of the Simms-Bosch low-tension magneto with make and break spark in place of the jump spark ignition used last year. The spark is obtained by interior make and break, and the igniters are held in the cylinder by a single nut each. The igniter points are of imported nickel alloy such as is used in foreign cars which employ this system of ignition. A feature of this system is that the ignition timing is taken out of the operator's hands and is regulated by the speed of magneto which is geared to the motor through a half-time shaft. The timing gears are enclosed in aluminum casings and are of hard bronze. All valves are mechanically operated. Each camshaft is forged of one piece, the cams being forged integral with the shaft itself; cams are case hardened and the rollers which operate the lifting rods are also case hardened. The cams are of generous proportions and practically noiseless. The connecting rods are of nickel steel and are hardened at the piston ends, the piston pins also being hardened and secured in the piston by means of a spring washer fitting into a groove in the piston ring. The brasses on the crank pin ends of the connecting rods are of special bearing metal and have large bearing surface.

The circulating system consists of a honeycomb cooler and the water is positively circulated by a centrifugal pump mounted directly on the engine and driven by a gear from the exhaust camshaft; a cooling fan is mounted on a bearing bolted to the front cylinder and is driven by a leather belt from a camshaft pulley. A Hill precision oiler lubricates all the bearings in the engine and transmission, besides furnishing a surplus of oil which is used for the splash lubrication of the cylinders.

Uniformity of the quality of gas supplied by the carbureter is secured by fitting the carbureter with an auxiliary air inlet; permanent adjustment is made by means of a valve, after which the carbureter takes care of itself, so far as the quality of the mixture is concerned. The throttle is part of the carbureter, and is controlled by a lever on the steering wheel, independent of the ignition timing.

The clutch is an aluminum leather-faced cone fitting into a recess in the flywheel. The spring which gives the clutch its grip is so arranged that no thrust is transmitted to the engine bearings. A universal joint connects the clutch to the transmission, preventing undue wear to the engine and transmission bearings due to the possibility of the members being temporarily out of alignment.

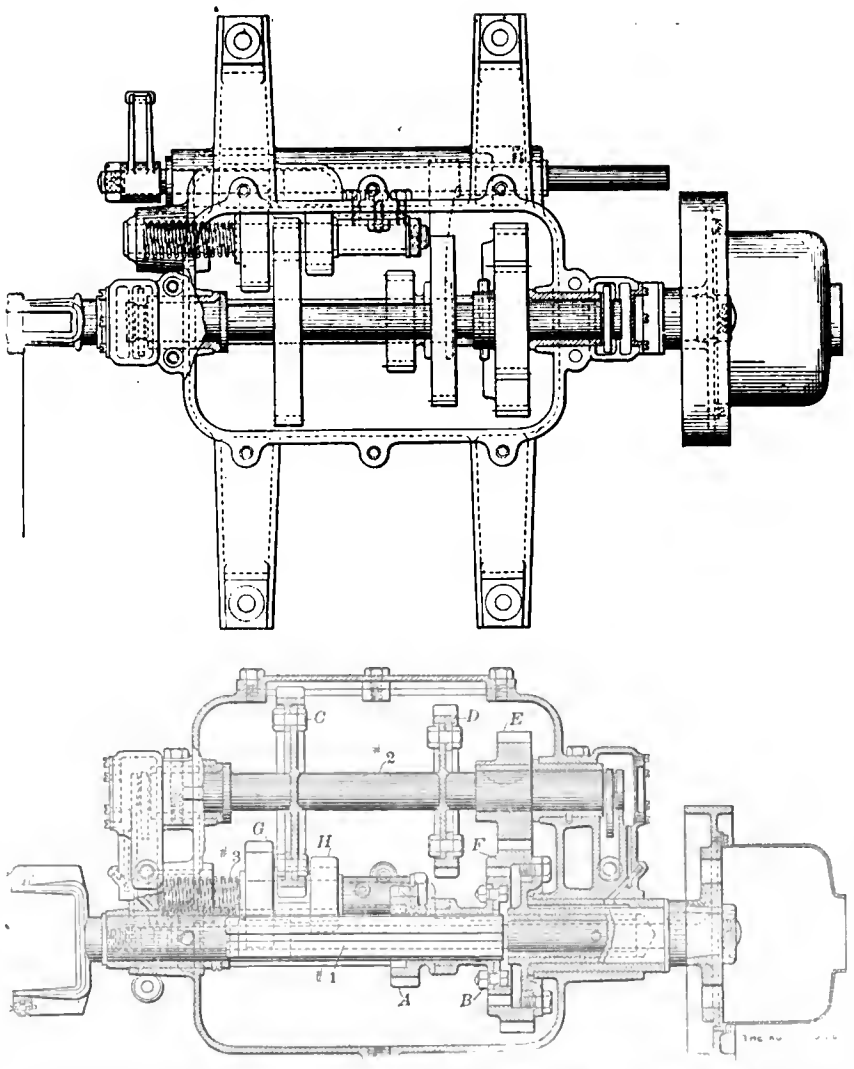
The transmission, illustrated by the accompanying line engraving, is of the sliding gear type giving three speeds forward and reverse. The intermediate pinions are on one countershaft, 2, which is always running, while the reverse pinions are on a second countershaft, 1. For low-speed sliding gear



CLEVELAND 30-35-HORSEPOWER MOTOR SHOWING LOW-TENSION MAGNETO.

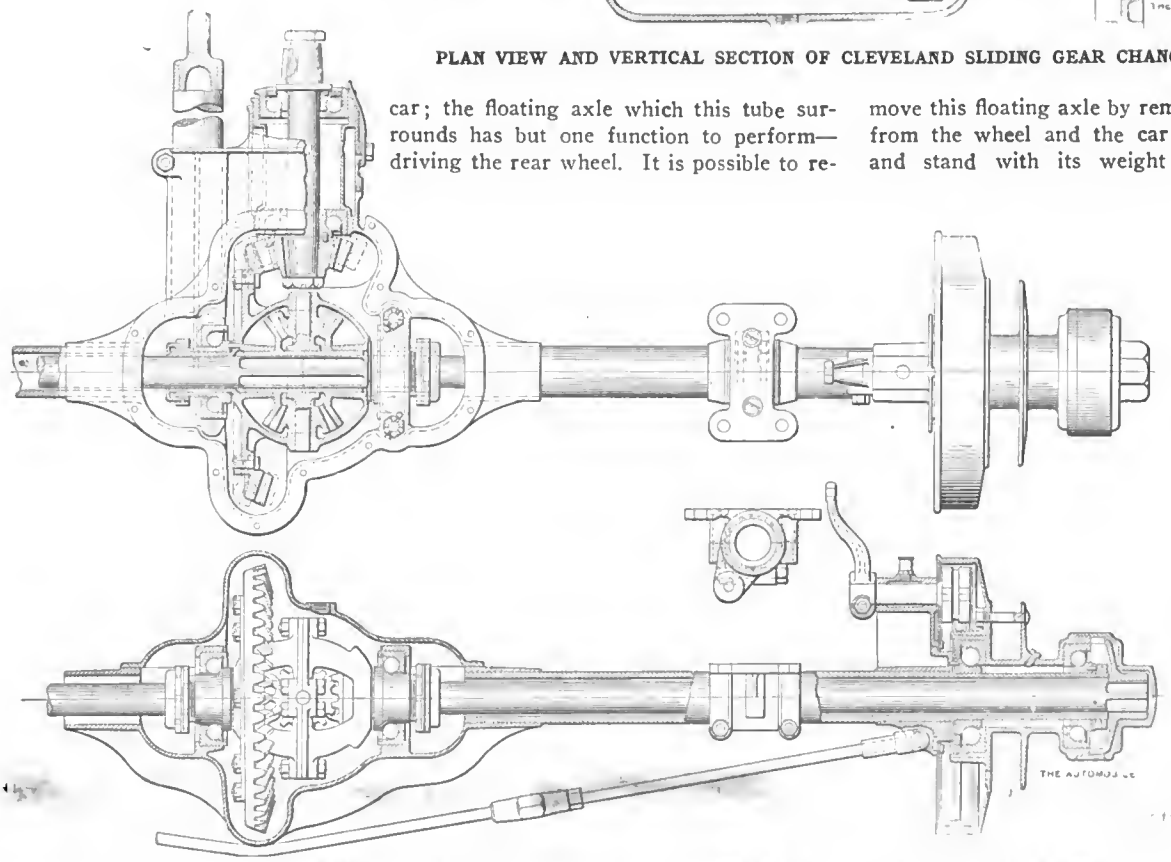
A passes into mesh with gear *C*, which drives the main driving gear *F* through the countershaft driving gear *E*.. For the second speed, gear *B* passes into mesh with countershaft gear *D*, which drives in the same way. For the third speed sliding gear *B* engages with an internal gear cut in *F*, which connects the crankshaft and propeller shaft as one. For the reverse, sliding gear *A* passes into mesh with reverse pinion *G*, which operates on the reverse pinion countershaft; at the same time reverse pinion *H* engages with countershaft gear *C*, reversing the direction of *C*, and consequently reversing the driving mechanism. The shafts and gears are all of high carbon steel and are oil tempered; the bearings are also of high carbon steel, hardened and ground and equipped with oil rings. The driving pinion *E*, which is always in mesh, is pinned and keyed to its shaft. The hubs of all other gears are forged integrally with the shafts and the gears are bolted to them. The gearcase is of aluminum and is provided with a large hand hole for examination and initial lubrication of the gears and shafts.

The propeller shaft is equipped with two cardan joints and is made of high carbon steel; the pins are oil hardened and the sliding joint at the rear end of the shaft is of generous dimensions. The rear axle is bevel gear driven and is of the well-known hub clutch type. The exterior tubes upon which the rear wheels revolve are hardened and ground and carry the weight of the



PLAN VIEW AND VERTICAL SECTION OF CLEVELAND SLIDING GEAR CHANGE SPEED.

car; the floating axle which this tube surrounds has but one function to perform—driving the rear wheel. It is possible to remove this floating axle by removing the hub from the wheel and the car will still roll and stand with its weight on the rear

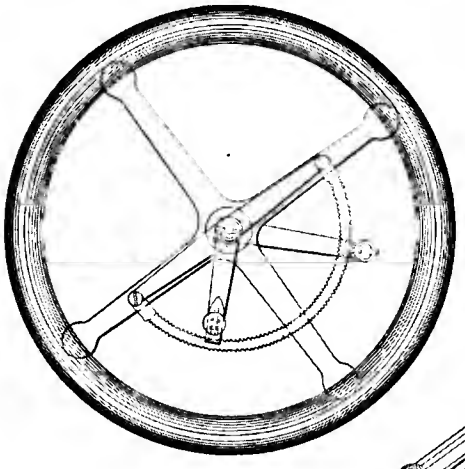


CLEVELAND REAR AXLE, PARTLY IN SECTION, SHOWING BALL-BEARINGS AND DRIVE TO OUTSIDE OF HUB.

wheels. The differential is mounted on ball bearings and the driving shaft is equipped with similar bearings. The driving gears are unusually large, being of 4 pitch. All wheels are equipped with ball bearings; the races and cones are hardened and ground.

The brake equipment consists of a band brake on the propeller shaft actuated by a foot pedal and the emergency brakes, of the internal expanding type, enclosed in dust-proof casings on the hubs of rear wheels. The brake bands are of phosphor bronze working on steel drums.

The front axle is of I-beam section and is made of a single piece of drop forged nickel steel; steering knuckles are of high carbon forgings, oil hardened, as are also the pivots and all the pins used in the front axle and steering connections. The steering gear is of the nut and screw type, irreversible; the casing is a single malleable iron casting fastened to the frame. The control levers for the mixture and spark are on top of the steering wheel, the quadrant being stationary. The gear change and emergency brake levers are at the side of the driver's seat. The clutch is operated by a pedal and the brake on the rear transmission shaft is operated by another pedal. A 14-gallon tank for gasoline is placed under the front seat, the gasoline feeding direct to the carbureter by gravity through a sediment trap which removes impurities.

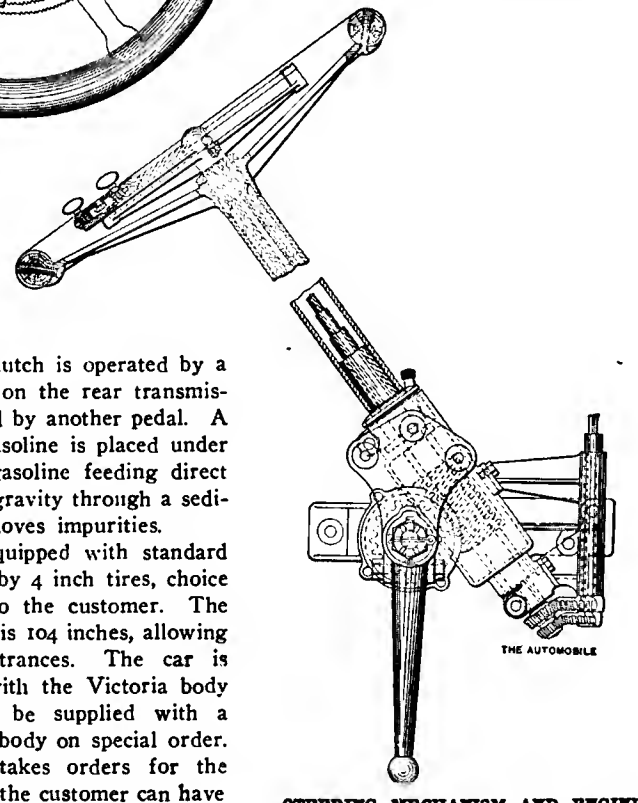


The wheels are equipped with standard clincher rims for 34 by 4 inch tires, choice of tires being left to the customer. The wheelbase of the car is 104 inches, allowing spaces for wide entrances. The car is equipped regularly with the Victoria body illustrated, but will be supplied with a double phaeton tulip body on special order. The company also takes orders for the chassis alone, so that the customer can have a body built to suit his individual tastes.

Compound Car for Physicians' Use.

WITH the exhaust from gasoline motors issuing from the cylinders at a pressure which, in many cases, reaches forty pounds to the square inch—a pressure that represents so much wasted energy—it is not surprising that serious efforts have been made to utilize this energy by compounding the gasoline engine, much as the steam engine is compounded. An engine designed with this object in view is built by the Eisenhuth Horseless Vehicle Co., of Middletown, Conn., and is fitted to the cars turned out by that concern. Apart from the motor, which is rated at 12-15 horsepower, modern touring car practice is followed, the machine generally being of the foreign type with pressed steel framing, sliding gear transmission giving three forward speeds, leather-faced cone clutch and drive either by propeller shaft and bevel gears or by side chains, as may suit the preference of the purchaser.

The accompanying illustration shows the car fitted particularly for the use of physicians and called the "Dr. Compound"; but as the regular touring car chassis is used, the mechanical features are alike. The motor, placed vertically under the hood, has three cylinders, two high-pressure cylinders 4 inches in diameter and, between them, one low-pressure cylinder 7 inches in diameter; the stroke in all cases is 4 inches. The high-pressure cylinders are of the usual type used in gasoline motors, having mechanically operated valves, both located on the right-hand side; but instead of exhausting into the atmosphere through a muffler they exhaust into the low-pressure cylinder. The high-pressure cranks are both on the same side of the crankshaft and the low-pressure crank is on the oposite side—in other words, the two high-pressure cranks are set 180 degrees from the low-pressure crank. The explosion cylinders fire alternately. At the beginning of each exhaust stroke a valve opens and permits the exhaust gases to pass into the large cylinder, where they drive down the piston and are expanded to a low terminal pressure and finally escape into a small muffler, the temperature and, of course, the pressure being much lower than on leaving the small cylinder. Each high-pressure cylinder exhausts into the low-pressure cylinder, and as the exhausts alternate, there is an impulse every half revolution, as in a four-cylinder motor of the usual type—that is, there are two explosions and two low-pressure impulses every two revolutions of the crankshaft.

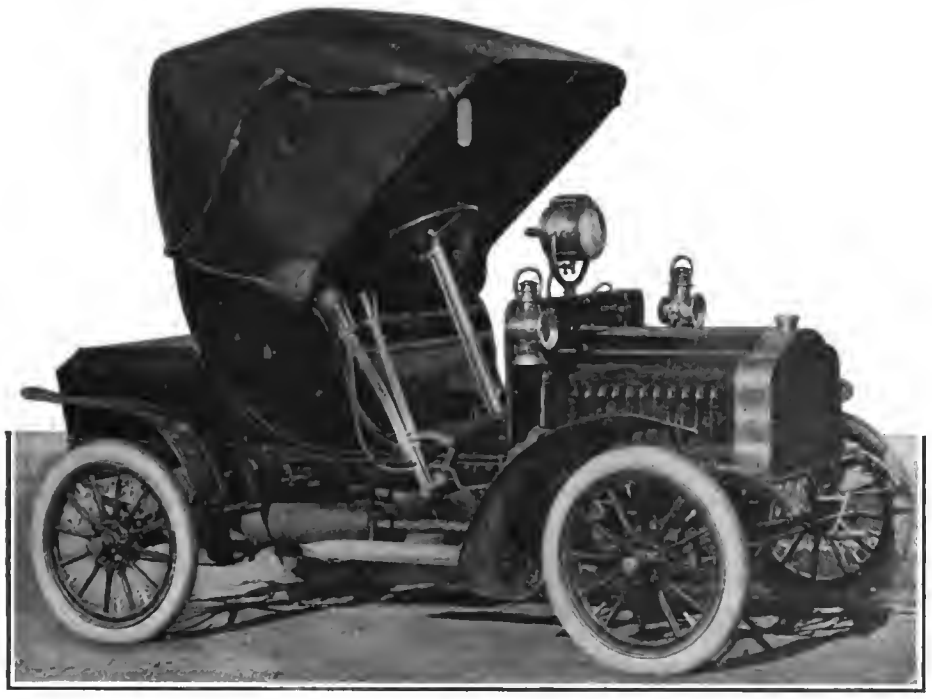


STEERING MECHANISM AND ENGINE CONTROL OF CLEVELAND CAR.

Mechanical balance of the reciprocating parts is obtained by counterweighting the high-pressure cranks to balance the extra weight of the large low-pressure piston. The manufacturers state that, having only two explosion cylinders, there are fewer parts and consequently less liability to trouble than where four explosion cylinders are used; that the impulses in the low-pressure cylinder are exceedingly even throughout the stroke, giving the motor good torque at low speeds and excellent hill-climbing ability; that the compounding feature results in economy of fuel; and that the gases have ample time for complete combustion, with the result that the exhaust is clean and odorless.

The three cylinders of the compound engine are cast integral; the heads and water jackets of the explosion cylinders are cast integral, but the low-pressure cylinder has a separate head screwed in. The inlet and exhaust valves of the small cylinders are all on the right, operated by a single camshaft, while the inlet and exhaust valves of the large cylinder are on the opposite side, operated by a separate camshaft. All valves can be removed through openings closed by screw caps. Each high-pressure piston has three packing rings, while two are used on the low-pressure piston. The crankshaft is made from a hand forging and has four bearings; the flywheel is bolted to a flange formed integral with the shaft.

A mechanical oiler placed on the dashboard of the car sends oil to the low-pressure cylinder, in which an oil-retaining groove is cut, and to the two compartments of the high-pressure cylinders, where the splash system is adopted. Ignition is by jump spark. A geared circulating pump forces the cooling water through the system; the radiator is of the tubular type and is backed by a ball-bearing fan.



"DOCTOR COMPOUND" 15-HORSEPOWER CAR WITH STANHOPE TOP FOR PHYSICIAN'S USE.

The framing is of pressed steel, well braced at the corners, and the members are cold-riveted together. The front axle is tubular, dropped in the center; the Elliott steering yokes are pinned and brazed into the ends. The wheelbase is 82 inches and the tread 56 1-2 inches; the 28-inch artillery wheels are fitted with 3 1-2-inch tires. All springs are semi-elliptic and are 39 inches long. The rear axle is large and strongly trussed, and the differential is of the spur gear type. The standard chassis has bevel gear drive, but for 1906 side chain drive will be furnished when desired.

Three forward speeds and a reverse, with high speed direct drive, are controlled by a single lever; on the high speed the secondary shaft is thrown out of gear and does not rotate. A leather-faced cone clutch is fitted and is released by pedal. A pedal brake acts on a drum on the driving shaft. while the lever brake for emergency use acts on the rear hubs.

The body is of aluminum, whether of the touring type or of the special doctor's type illustrated; a large carrying space for luggage is provided.

In addition to the pleasure cars, the E. H. V. Co. is manufacturing a delivery wagon, as illustrated, embodying the compound motor, the motor being the same in every way as that used for the pleasure cars. The wagon has a wheelbase of 82 inches, with standard tread; the wheels are 28 inches in diameter and are fitted with 3 1-2-inch tires. A sliding gear transmission is used, giving three speeds and reverse, and drive is by propeller shaft and bevel gears

---

Automobile salesmen are realizing more and more every day the truth and application of the adage that "the hand that rocks the cradle rules the world." The purchase of an automobile is usually discussed at some length in the family circle before the decision is made, and whether the machine be a runabout or a high-priced touring car, the wife's judgment often decides the question. Of late it has become a fad for society women to do their shopping in automobiles, and as a result the limousine and landaulet types of body are becoming very popular in the larger cities. Among the less wealthy the runabout or small electric that can be operated by a woman has found decided favor. Those companies making machines which can be operated safely and easily by women have found a new market, as has been shown by the great increase in their sales during the past year.

E. H. V. COMPOUND CAR FITTED WITH A LIGHT DELIVERY BODY.

Howard 4-Cylinder Motor.

A four-cylinder vertical motor of 40-horsepower, for automobile work, is being manufactured by W. S. Howard, of Yonkers, N. Y., who will also turn out a motor for marine work built on the same general lines. In the automobile motor accepted foreign practice is followed in the general arrangement; the cylinders are cast in pairs with integral water jackets, heads and valve chambers; the mechanically operated valves are placed on oposite sides of the cylinders, inlet valves on one side and exhaust valves on the other. A comparatively recent idea is adopted in setting the valves at an angle of 45 degrees with the cylinders; valve guides are long and are annealed after being machined. In order that the relative positions of the valve seats and guides may be exactly correct, the seats are not finally finished until the guides are in position. The cylinders are ground to a plug gauge and the pistons are ground .004 smaller than the cylinders; the spaces between the grooves for the rings, however, are reduced 1-32 of an inch, so that these parts of the piston do not come in contact with the cylinder walls. There are four rings, one being placed near the bottom of the piston to wipe the surplus oil off the cylinder walls; the rings are lap jointed and are ground true on a magnetic chuck after being cut. The drop forged connecting rods are of I-beam section and are fitted with marine type big ends with bronze bushings, babbitt lined; the brasses are dovetailed together and held by two 1-2-inch nickel steel bolts. The piston pin is of hardened and ground steel, 1 1-4 inches in diameter, and the bearing surface is three inches long. The piston pin end of the rod is not bushed for the pin bearing, but is hardened and the hole lapped true. The two-to-one gears are enclosed;

HOWARD 40-HORSEPOWER AUTO ENGINE.

the timer is geared to one of the camshafts and will be placed directly on the camshaft or on a gear-driven vertical shaft, as ordered. Cams are of hardened steel, as are the rollers in the push-rods. The aluminum crankcase is split horizontally and the upper half carries the three main bearings, the lower half, which is removable without disturbing other parts of the engine, serving as an oil container and dust shield. The crankshaft is made from a steel forging; the crankpins are hollow and serve to carry oil to the pins, as well as to lighten the shaft, and the slabs or cheeks are flat, with ends rounded and corners beveled off to save weight. The front end of the shaft is drilled out for the sake of lightness. A flange, formed integral with the shaft, is drilled with six holes to receive the fitted steel bolts used to attach the flywheel. Water circulation is maintained by a gear-driven gear pump. A carbureter of the Mercedes type is used, and is stated to be automatic in action.

In addition to the 40-horsepower motor, Mr. Howard will build a larger and a smaller engine, the same general features being retained. A chassis, fitted with 40-horsepower motor, will be built for the trade.

A GUIDE FOR SALESMEN.

Under the title "The Motor Car Dissected," the Winton Motor Carriage Company has issued a neat little book for the pocket which it is distributing among its agents. The book, which is bound in soft, black, fine-grained morocco leather, is written in the style of a direct talk with the agent. Opening with a catechism giving ten reasons why a prospective purchaser comes to the agent, it continues with a wide range of arguments and "points" for the use of the salesman in inducing a purchase of a Winton. Features of the car and its individualities in construction are dwelt upon, and also the various methods of testing materials and parts in the Cleveland factory. There are halftone illustrations of the Model K car, in the chassis and fitted with open phaeton body, with full leather folding top raised, and with limousine body. Each book has the name of the agent to whom it is sent stamped in gold on the cover and bears on the last page the autograph signature of Charles B. Shanks, general sales manager for the company.

This book makes an attrtctive way of putting the agent in possession of fresh and effective arguments with which to meet his customer and give useful information.

Expanding Band Clutch.

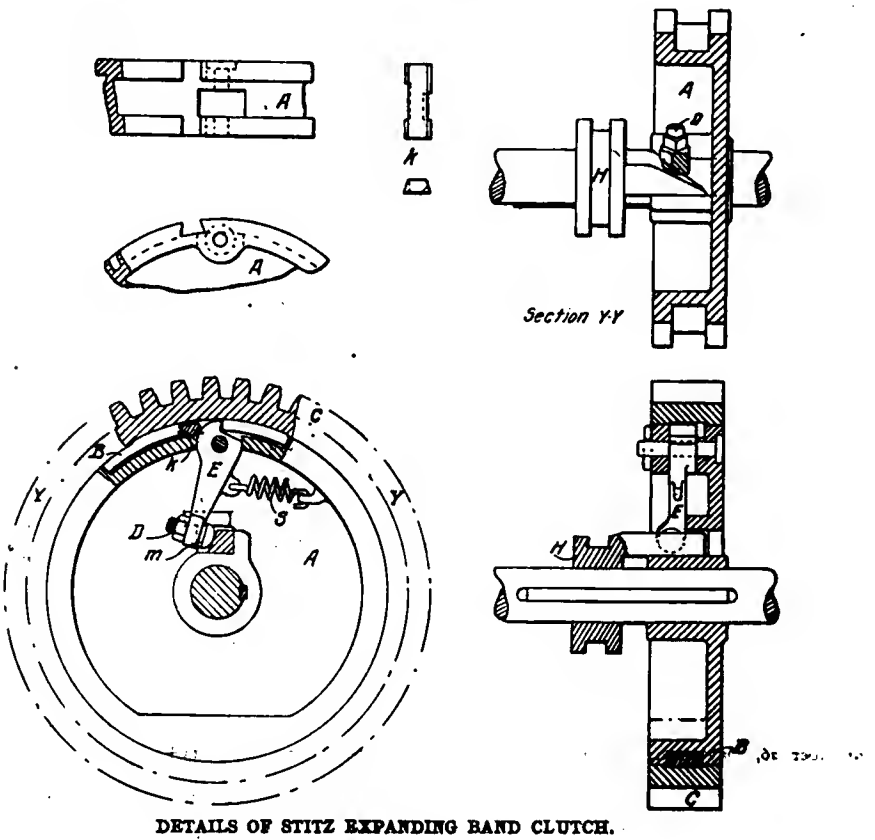
A clutch of the internal expanding band type, intended to run in oil, is shown in the accompanying line engraving, and was designed by H. B. Stitz, of Philadelphia, Pa. The clutch is shown mounted within a gear, though it is not necessarily arranged in this way; the flywheel of the motor could take the place of the gear without changing the construction of the clutch.

The wheel *A* is keyed to the shaft, and has in its rim an annular groove in which the split band *B* of springy steel is placed. The gear *C* is slipped over the edge of the wheel. It will be understood that if the ends of the split band *B* are forced apart the band will be pressed against the interior of the gear, as an internal expanding brake is pressed against the interior of its drum; the band, traveling with the wheel *A*, causes the gear and wheel to revolve together, provided sufficient force is applied to cause the requisite friction between the band and the interior of the gear.

The means for forcing apart the ends of the split ring are supplied by a collar *H*, of the type commonly used in clutches, sliding on the splined shaft. The collar is provided with a wedge-shaped extension, sliding in a guide formed in the hub of the wheel *A*. A lever *E*, fulcrumed, as shown, near the edge of the wheel, is adapted to produce a cam-like action, acting on one end of the split ring when the lever is shifted by advancing the wedge attached to the collar *H*; when the wedge is withdrawn the spring *S* brings the lever back to neutral position, and the natural spring of the split band withdraws it from contact with the gear. The round head of a bolt *D* takes the thrust of the wedge; by varying the thickness of the washer *M* the proper adjustment can be made. The outer end of the lever *E* acts on one end only of the band, the other end abutting on a key inserted in the edge of the wheel. The clutch is intended to run in oil, so that when first expanded the ring will slip sufficiently to give a gradual engagement the strength of which increases as the oil is forced from the friction surfaces.

An experiment was recently made by the Lacoste & Battmann works in France to see how long it takes to assemble a car. All the component parts of an 8-horsepower car were previously marked and at 6 o'clock on the morning of December 7 an official timer of the A. C. of France gave the word to start. At 9.48 A. M.—just 3 hours 48 minutes later—the car was completely erected and the engine running. At 10 o'clock Messrs. Lacoste, Rochet and Thomas started on a run to Bordeaux and back in the car.

A cracked cylinder jacket is the almost inevitable result of a combination of carelessness and cold weather.



DETAILS OF STITZ EXPANDING BAND CLUTCH.

Letter Box

Itinerary—Buffalo to New York.

Editor THE AUTOMOBILE:

[297.]—The following is a brief itinerary or log-book of an actual run from Buffalo to New York with a 35-horsepower, eight-passenger touring car:

September 26. Cyclometer reading 1,341.5. Left Buffalo at 11 A. M. and arrived at Batavia, 37 miles, at 12.30 P. M. Roads for the first twenty miles level and good macadam, the remainder being fairly good and the last few miles rolling. Dinner at Richmond Hotel. Left Batavia at 2 P. M. for Rochester, 35.5 miles, via Bergen and Churchville Ridge Road and Lake avenue. Road mostly good, rolling; ten miles good macadam coming into Rochester. Had ignition trouble and changed battery. Arrived at Rochester at 5:15 A.M. Storage, Rochester Auto Company's garage. New Osborn Hotel, near the garage. Mileage for the day 72.5. Hours spent on the road 4.45. Mileage per hour, 16+. Weather fine.

September 27. Cyclometer reading 1,414. Started at 9 A. M., in the rain, for Savannah, 47 miles, arriving at 12.30; weather clear. Went around marsh. Roads fairly good and rolling all the way; some hills. Dined at Savannah and left at 1.30 P. M. for Syracuse, 35 miles. Reached Syracuse at 3.45 P. M., after a delay of thirty minutes, caused by having missed the road. Left at 5.15 for Utica, 68 miles. Ran to Verona before lighting the lamps; reached Utica at 8 P. M.; good road from New Hartford in. Stopped at Baggs' Hotel; storage, Miller-Mundy Auto Company's garage. Day's run, 150 miles. Hours on the road, 10. Mileage per hour, 15.

September 28. Cyclometer reading 1,564. Left Utica at 8.30 A. M., arriving at Amsterdam, 66 miles, at 11.30 A. M. Road for five miles out good macadam; road to Herkimer very rough; good road to Amsterdam. Took a photograph at Little Falls. Overtook party that had left Utica half hour before us, trying to get up Herkimer Hill by unloading passengers; we went up on second speed. Stopped at Amsterdam for dinner at Hotel Central, and left for Albany, 34 miles, at 1 P. M. Road good to Schenectady. Out of Schenectady followed trolley line for ten miles to the power house, and then turned to the right and took the boulevard for Albany. Arrived at 4.30 P. M. Mileage for day, 100. Hours on the road, 6.5. Mileage per hour, 15+.

September 29. Cyclometer reading 1,664. Left Ten Eyck Hotel, Albany, at 7.30 A. M.; good road out. Got a puncture at Red Hook that delayed us two hours. Reached Poughkeepsie, 74 miles, at 1.30 P. M. Took dinner and supplies and left at 3 P. M. for New York, 76 miles, with patch on tire leaking slowly and provokingly; had to be pumped frequently. Lighted lamps at Sing Sing and took on a boy who knew the road as pilot. Reached New York at 10 P. M. Day's run, 156 miles. Hours on road, 11. Mileage per hour, 14.2. Cyclometer reading 1,820.

H. M. S.

SNAPSHOT TAKEN AT LITTLE FALLS ON THE WAY FROM BUFFALO TO NEW YORK.

SUMMARY OF LOG OF AUTO TRIP FROM BUFFALO TO NEW YORK.

	Left	Time	Arrived	Timo	Cyclo. Reading	Miles	Running time, hours	Miles per hour	Gaso.	Stops and Delays
September	26, Buffalo	11:00 A.M.	Batavia	12:30 P.M.	1378.5	37	1½	24	8	
"	26, Batavia	2:00 P.M	Rochester	5:15 "	1414	35.5	3½	10	9	Changed battery.
"	27, Rochester	9:00 A.M.	Savannah	12:30 "	1461	66	3½	19	9	Around marsh.
"	27, Savannah	1:30 P.M.	Syracuse	3:45 "	1496	35	2¼	15	5	30 miles lost road.
"	27, Syracuse	5:15 P.M.	Utica	8:00 "	1564	49	2¾	13	11	
"	28, Utica	8:30 A.M.	Amsterdam	11:30 A.M.	1630	66	3	22	8	
"	28, Amsterdam	1:00 P.M.	Albany	4:30 P.M.	1664	34	3½	10	12	
"	29, Albany	7:30 A.M.	Poughkeepsie	1:30 "	1738	74	4	18	10	Two-hour puncture.
"	29, Poughkeepsie	3:00 P.M.	New York	10:00 "	1820	82	7	12	5	

September 26, Days run, 72.5 miles; time, 4.45; miles per hour for day, 15+
" 27, " " 150 " " 8.30; " " " " " 17.6.
" 28, " " 100 " " 6.30; " " " " " 15.4.
" 29, " " 156 " " 11.00; " " " " " 14+

Total miles for 4 day, 478.5; total runnings, time, 30½ hours; total gasoline, 77 gallons; average miles per hour, 15.5; miles per gallon of gasoline 6.2.

THE AUTOMOBILE

VOL. XIII. No. 26

Published every Thursday by

THE CLASS JOURNAL CO.,

Flatiron Building, Madison Square,

NEW YORK CITY.

Cable Address - - - - - Autoland, New York
Long Distance Telephone - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - One Year, $2.00
Other Countries in Postal Union, - One Year, $3.00

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride Street, Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

To Advertisers—Copy or changes in orders for advertisements should reach us not later than 5 o'clock p. m. Monday for the issue of Thursday following.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies printed in 1904, - - - -	639,300
" " This Issue, - - -	14,000
" " Since Jan. 1, - - -	730,000

The Society of Automobile Engineers. During the show week in New York an event of the highest importance to the automobile industry will be the inaugural meeting of the Society of Automobile Engineers, to be held as previously announced, on Monday evening, January 15, at the Grand Hotel. The Society, which was started by a little group of leading American automobile engineers, now includes a membership of fifty, and it is hoped that the gathering next month will result in a very large addition to the membership.

Owing to the enormous area of country over which the membership is scattered and the tremendous activity in the automobile industry, it has not been possible to hold a general meeting of the Society at an earlier date, as most of the members have been unable to spare the necessary time. During the show week, however, automobile constructors from all the manufacturing centers visit New York, and for this reason the attendance of practically the entire membership is expected at the meeting. Many of the members never having met one another, it was decided to get them together socially at an informal dinner before the business and technical sessions of the meeting. At the latter it will be for the members to decide the time and place of future meetings.

It is undeniable that the time is ripe in the automobile industry for the building up of a national technical organization on purely professional lines, such as exists in other branches of engineering—civil, mechanical, electrical and marine. To be of scientific importance, commanding the respect and confidence of the whole industry and of the interested public, such an organization must be free from any commercial alliances or entanglements, directing all its intellectual resources and its activities to the advancement of the arts and sciences connected with automobiles and automobile construction. Already the various commercial interests concerned with the production and marketing of automobiles have their representative national organizations, and the field of sport in automobilism is also adequately represented. The very existence of these bodies indicates the magnitude and the permanency of the industry among the great manufacturing interests of the United States. In the final analysis the industry rests upon the knowledge and skill of the automobile constructor; indeed, the designing rooms are the head waters in which originates the great stream of commercial prosperity of the entire automobile industry. By bringing the constructors of the country together to compare experiences, coordinate data, and supplement individual effort by organized investigation the Society can perform a service the results of which will profoundly affect the entire industry for good.

Considering its purely technical purposes and the public nature of its deliberations and transactions the Society is worthy of the support of all, and the meeting in New York should result in a great extension of its resources and activities due to increased membership and interest. Eligible persons connected with the industry should not postpone applications for membership, which includes Members, Associates and Juniors. They can readily secure all needful information by communicating with the secretary, E. T. BIRDSALL, 136 West Thirty-eighth street, New York city.

✷

Alleged Irregularities in Vanderbilt Race. We await with some interest and a good deal of curiosity the mail reports from Paris of the alleged "irregularities" charged against the 1905 Vanderbilt Cup Race management. We have already received a brief cablegram (published in our last issue) and we have read what appear to be garbled reports in the daily newspapers. In these, the international committee which recently sat in Paris is credited with an extraordinary lack of knowledge as to the status of the race management, evidently confusing the Automombile Club of America with the American Automobile Association. The Automobile Club of America has never had any direct official connection with the Vanderbilt race. Its officers and members have taken a deep interest in the great race, and indirectly as one of the constituent clubs of the American Automobile Association, it has participated in the affair. As *the* club of America recognized abroad, and the official mouthpiece of American automobile organizations in their foreign relations, the A. C. A. has served as an intermediary, through which official correspondence has passed. But direct responsibility for any detail of the Vanderbilt race management, it has never sought nor assumed. The actual management of the race was entirely in the hands of a commission composed of the racing board of the American Automobile Association, W. K. Vanderbilt, Jr., and a representative of the Automobile Club of France.

It seems rather late in the day now to bring forward accusations against the good faith of the commission with respect to entries and qualification of the cars entered to race. As a result of its decisions after the eliminating trials for the American cars, the commission was severely censured, and in this we concurred at the time. As to any irregularities in the conduct of the Vanderbilt cup race itself, there has never been even a suspicion that such existed, and we submit that those who were on the ground and closely followed every act of the management, were in a better position to know what happened than those 3,000 miles away. The very absence of criticism—after the severe arraignment of the management subsequent to the elimination trials—is assurance that no irregularities existed. On the contrary, the work of the commission in the conduct of the cup race was above and beyond praise. Its work displayed a thoroughness, a fairness to all home or foreign competitors, and a spirit of good sportsmanship that was admirable in every feature. The men entrusted with the onerous duties of supervision earned the confidence of all interested persons, a confidence that cannot now be shaken by petulant accusations, in questionable taste and lacking every instinct of good sportsmanship.

We are free to admit that there may have been misunderstandings, though we know of cause for none. These, however, could have been dispelled by correspondence in a friendly spirit. It will be satisfactory to learn that such a spirit prevails and that the complete reports will show that the statements of the foreign meeting have suffered from sensational distortion.

✷

Good News from Arizona. We are glad to be able to publish a news letter from the transcontinentalists in this issue, written by PERCY MAGARGEL, in which he says that the members of the little party are in good health and spirits. Alarming news reports to the effect that the party was lost in snowdrifts in the rugged country near Flagstaff, Arizona, were widely published about the time of our going to press with the last issue; soon happily followed by the announcement that

the tourists had reached Flagstaff in company with a searching party. A dispatch from THE AUTOMOBILE to the party was responded to by the letter we now print. Its tone is cheerfully optimistic, and shows that while the tourists must have endured privations and great hardships, these have not in the least disturbed the determination to complete the trip. Certainly a hearty welcome should await the men on their arrival in New York—after "circumnavigating" the United States in an automobile, and that without the "weather permitting" sign hung out.

In this trip the American touring car has certainly demonstrated its possibilities and to the performances of the automobile another remarkable record is added. Just as rains that stopped railroad traffic did not prevent the cars in the 1903 Reliability Run from reaching Pittsburg, so apparently the snows and low temperatures of the highlands of the Southwest have not proved insurmountable to American pluck and American constructive mechanical skill. Its new use as a life-saving apparatus is notable also, for with his liquid fuel the tenderfoot from the East was able to withstand the rigors of climate that destroyed the native Arizonian.

U. S. Consul Horton, of Athens, writes that the Currant Company of Greece has on foot two enterprises for utilizing the supply of currants withheld yearly from sale, which are likely soon to be put into effect. A concession has been secured from the Boulé (Parliament) for establishing a public automobile service between the various cities and towns of the kingdom which are not situated on railroad lines. These automobiles will employ alcohol as fuel, and will be under the control of a company having 800,000 francs capital. It is reported that Hamburg capitalists are interested in the enterprise, as well as the Bank of Athens and other local banks. A company is also being formed for the manufacture of lamps for lighting that will burn spirits prepared from currants. It is claimed that these lamps give a softer light than electricity and that they are much cheaper. The Currant Company will undertake to furnish spirits of wine to both these enterprises at a fixed and reasonable price.

Means for improving the sliding gear transmission used in automobiles is the subject of a patent recently issued to C. E. Bertels, of Wilkes Barre, Pa. The inventor plans to place a clutch behind the transmission gear, in addition to the usual flywheel clutch; a single lever operates both clutches. When the clutches are withdrawn the transmission gear is cut off from both the engine and the rear wheels, and gears can be shifted as if the car was standing. Any style of friction clutch can be used. The inventor states that he believes the duplication of clutches will eliminate the liability to strip gears.

Washington, D. C., 1,000-mile Non-stop Run

WASHINGTON, D. C., Dec. 23.—Many stirring experiences marked the efforts this week of L. S. Jullien, local agent for the Reo, assisted by R. S. Lockwood and C. C. Singer, of the New York branch of the Reo Motor Car Co., to make a non-stop run of 1,000 miles in a Reo touring car on the streets of Washington. Not only did they have to contend with the most disagreeable weather conditions of the year, but Singer was unfortunate enough to violate the speed law and was haled into court on two charges, being fined $15 on each.

Notwithstanding these handicaps, the plucky drivers persevered in their task and had the satisfaction of completing the requisite distance without stopping the engine. No efforts at record-breaking were made, but the time made—70 1-2 hours—is considered very good under the circumstances.

A 16-horsepower Reo touring car of this year's model, equipped with Goodrich tires, was used, and, excepting the loss of a staybolt, which was quickly replaced, there was an entire absence of tire or mechanical troubles. A Jones combination odometer-speedometer was used to register the time and mileage.

Pennsylvania avenue, Washington's greatest thoroughfare, had been selected for the run, the idea being to run from Washington Circle to the Peace Monument at the foot of the Capitol, a trifle more than a mile in each direction. This plan had to be abandoned eventually, owing to the strict orders that had been issued by the superintendent of police to arrest the drivers on the slightest pretext. Occasionally during the run the trip up and down Pennsylvania avenue was made, but more secluded streets were generally selected for the night runs, while during the day the Conduit road, Chevy Chase road, and other highways leading into the country were used.

The start was made at 11 A. M., December 18, Jullien driving. The car soon warmed up nicely, and two hours later, when Lockwood took the wheel, it was running splendidly. The streets were filled with snow and the conditions seemed all against the run. No untoward incidents transpired until 4 o'clock Tuesday morning, when Singer was held up by a policeman and subjected to arrest. The officer wanted to take him to the police station and lock him up, which would have stopped the run effectually, but Singer prevailed upon him to ride in the car to the garage, where Jullien was aroused and gave bond for Singer's appearance in court. He was fined $30, after a little lecture had been given him by the judge.

Throughout the run the drivers alternated, each taking a turn at the wheel for two hours, after which they had four hours off for sleep. The situation looked pretty bad Tuesday afternoon when the drivers learned that the superintendent of police had issued a general order to all the precincts to make as many charges against the drivers as possible. However, they kept strictly within the speed limits and no charges could be filed against them. The finish of the 1,000 miles was made at 9:23 o'clock Thursday morning.

Jullien expressed himself as delighted with the achievement, which has given the car much prominence here, and he expects to reap considerable benefit in the way of sales.

STRANGE JUDICIAL DECISION.

Philadelphia Judges Hold that Autoists Must Carry City and State Tags.

PHILADELPHIA, Dec. 23.— There was dismay among the local automobile club's lawyers last Wednesday when Judges Willson, Audenreid and Carr, of Common Pleas Court No. 4, handed down their opinion refusing an injunction against the city, the Mayor, and the Director of Public Safety, restraining them from attempting to enforce the provisions of the automobile ordinance of 1902 after the first of the year. They held that there is nothing in the Act of Assembly of last April conflicting with the local ordinance, and that the provisions of both measures must be lived up to by the automobilists of this city.

This decision, if upheld by higher courts, will open the doors for the enactment by cities, counties and towns all over the state of local ordinances compelling automobilists to secure licenses from the authorities of such lesser corporations before they can operate their cars on their roads. To say that the decision was a surprise would be stating the case mildly.

After a day or two the automobilists took steps toward carrying on the fight to a finish. A member of the club, whose car will be decorated with the state tags, but without the municipal tag, will submit to arrest by the city police and the case will then be carried to a conclusion through the various courts.

ILLINOIS FARMERS BUYING AUTOS.

CHAMPAIGN, ILL., Dec. 23.—Farmers of this section are buying automobiles. One finds but few instances of this kind while traveling through the country, but the wealthy farmers are finding uses for autos on the farm.

One wealthy land owner named Phillipi, of Champaign county, recently recaptured one of his blooded bulls by giving chase in his machine. He not only caught up with the animal, but got him headed back home and finally corralled him.

There are about twenty-two automobile owners in Champaign. F. L. Bills, a telephone promoter, originated an apparatus by the use of which his electric machine is

charged. Mrs. Bills usually drives the machine, and she also is able to manipulate the recharging apparatus.

Automobiles are used here by some of the students who are attending the University of Illinois. They are stored in livery stables of Urbana and Champaign.

E. M. Barr, a machinist here, has patented a bevel gear drive giving three speeds forward. He has assembled a complete transmission which he will exhibit at the forthcoming show in Chicago.

A great deal of interest is taken here in automobiling. Farmers and county folk in general are inclined to be fairminded regarding the machines and their use.

TACOMA AUTO SERVICE.

Franchise Asked for Operation of Forty-Passenger Automobile Stages.

TACOMA, Wash., Dec. 20.—Harry Hurley, of the American Automobile Company, of this city, has just secured favorable action from the Council Franchise Committee upon an ordinance granting him the right to operate an automobile service in the streets of Tacoma. The ordinance, which, attorneys say, is the first of its kind in the country, has been under consideration for some time, but there is no doubt of its passage.

Mr. Hurley sees an opportunity because of the wretched street car system of the city to operate an auto service successfully, as the city is growing rapidly. Although an automobile service such as is contemplated might be operated without a franchise, Mr. Hurley wished to feel perfectly safe in the matter, and so went to the council. By securing the passage of an ordinance the company will come under the designation of common carrier.

In accordance with the ordinance not less than two machines shall be operated, and Mr. Hurley says each will have a seating capacity of forty persons. He has gone East to negotiate for the building of cars that will be suitable to conditions in Tacoma.

Tacoma is very hilly and cable cars only are operated by the street car company, as they can ascend the unusual grades. In order to make an automobile safe on these hills they must be of unusual power and with extraordinary braking appliances.

While sight-seeing autos are used in many cities, the practicability of an auto service as a common carrier in direct competition with a street car system will be given a severe test. But Mr. Hurley is confident and hopes to have two cars in operation before spring.

FARMERS' OPINION OF AUTOS.

CHAMPAIGN, ILL., Dec. 23.—One of the most unique papers ever read before a meeting of farmers was that of B. F. Smith, of Lawrence, Kan., at the fiftieth anniversary of the Illinois State Horticultural Society.

Mr. Smith was invited to prepare a paper on the "Evolution of Transportation," and he brought in the automobile. He said that the contrivance is nothing short of an invention of the devil and he wanted the legislatures to pass a law to stop its manufacture. Farmers are terrified by its appearance on the public highway, he said; some of them are killed, horses run away—and besides, "the thing is of no good to anyone on this earth."

Mr. Smith was a baggage smasher on the Illinois Central Railroad from 1857 to 1868. He afterwards became a berry grower in three states, is now seventy years old and is still raising berries, near Lawrence, Kan. It was because he had had this experience that the society asked him to treat the subject of transportation, and he brought it down from the time that the Queen of Sheba handled dates on the hump of a camel to the day of the automobile—the "wheezing whirler that ought to be wheeled into perdition."

ENFORCING PHILADELPHIA LAWS.

PHILADELPHIA, Dec. 26.—Special efforts are being made to enforce the local speed ordinance, and a number of automobiles have been gathered in during the past fortnight for exceeding the limit. Sections of streets have been measured off and policemen with stop watches have been stationed at these places to time passing automobiles and to make arrests when the speed is excessive.

A detail of policemen mounted on horseback has been stationed in the downtown district, including Broad, Chestnut and Walnut streets, and a corps of patrolmen on motorcycles is being formed to run down operators who cannot be apprehended in the ordinary way. Each man detailed for this special service is provided with a peculiarly shrill whistle that is easily heard above the noise of street traffic, and the offender who gets away from one officer will find his way blocked by others ahead.

The decision to adopt this means of breaking up the scorching evil was due to the increasing number of accidents, petty and serious, consequent upon the daily influx of Christmas shoppers into the downtown section. The arrangement is working so well, say the police officials, that it will doubtless be made permanent. Indeed, that was the original intention.

It is planned ultimately to have fifteen motorcycle policemen.

HANDSOME TOLEDO LIMOUSINE.

TOLEDO, Dec. 23.—James E. Pilliod is the first man in this city to own a gasoline automobile with a limousine body. The car was made in the local factory of the Pope Motor Car Company, its construction requiring nearly a year. The machine, which has just been turned over to the owner, is by far the handsomest automobile seen on the streets of Toledo. It has all the appointments of a first-class passenger coach on a steam road, even to being heated and electrically lighted. It is also fitted with a speaking tube whereby the occupants can communicate with the chauffeur.

The heating apparatus is especially ingenius, being so constructed that heat from the engine will pass into the car when a register is open and into the open air when the register is closed. The engine has four cylinders and generates 35 horsepower.

Mr. Pilliod, who recently returned from an extended European trip, states that the car will compare very favorably with any he saw in Europe.

SUBURBAN CLUBS TO UNITE.

CHICAGO, Dec. 23.—Preliminary plans for uniting the Oak Park and the Austin automobile clubs were made at a meeting held in Austin last week. It is proposed to have the consolidation put into effect with the beginning of the new year. The Oak Park club has a membership of 100 and the Austin club a membership of sixty-five.

Oak Park has long been a conspicuous automobile suburb, because it is John Farson's residence town, while Austin claims Frank X. Mudd as one of her leading citizens. Mr. Mudd was the organizer of the Chicago Automobile Club, and he is one of the leaders in the new movement.

The members of both clubs are persons of wealth, who can easily put the new club to the front. Other prominent automobilists who are in the new movement are Joseph H. Francis, president of the Austin club; W. G. Lloyd, ex-director of the Chicago Automobile Club, and Alderman John E. Scully.

BUFFALO CLUB ELECTION.

BUFFALO, Dec. 23.—The annual business meeting of the Automobile Club of Buffalo was held last Tuesday night in the club's rooms in the Teck Theater Building. The principal business was the election of officers, which resulted as follows: President, H. A. Meldrum; vice-president, F. B. Hower; secretary, Dai H. Lewis; treasurer, Charles Clifton; directors, Edward H. Butler, E. R. Thomas and S. P. White.

Augustus H. Knoll, the retiring president, made his annual report, which showed the club had experienced a prosperous year and is in a flourishing condition. An electric library table lamp was presented to Mr. Knoll by William H. Hotchkiss in behalf of the club. In an interesting address after the election, Mr. Hotchkiss urged the members to be ready to fight any unfair legislation that may be aimed at automobilists during the winter.

NEW DAYTON CLUB OFFICERS.

DAYTON, O., Dec. 23.—The Dayton Automobile Club has abandoned its handsome quarters on St. Clair street and moved to 210 South Main street. At the last meeting Treasurer John R. Flotron said the club

had been at heavy expense and that, owing to its location, the clubhouse was not patronized as it should be.

The following officers resigned: President Charles R. Raymond, Treasurer John R. Flotron, Directors G. W. Shroyer and H. M. Carr.

New officers were elected as follows: President, Bert Wolf; vice-president, J. J. Cooper; secretary and treasurer, W. J. Lukaswitz; directors, John Rock, W. J. Lukaswitz, Louis J. Wehner, Adolph Latin and Jos. L. Schenck.

Under the direction of the new officers it is expected to build up the club.

NEWS NOTES OF THE CLUBS.

WORCESTER, Mass.—Members of the Worcester A. C. held a banquet in the new rooms of the club last Tuesday night, as a formal opening of the new quarters.

NEW YORK.—Among the members admitted to the Automobile Club of America, under its recent decision to raise the membership limit, were C. F. Murphy, Robert A. Van Wyck, Andrew Freedman, Dr. W. Seward Webb, Anson Phelps Stokes and Henry Siegel.

AUSTIN, ILL.—At a recent meeting of the Austin Automobile Club, plans were formulated and approved for the consolidation of the club with the Oak Park Automobile Club, and a committee was appointed to confer with members of the latter organization, and report at a future meeting.

SAN FRANCISCO, CAL.—Members of the Automobile Club of California have pledged themselves to do all in their power to make the new boulevard extending southward from San Francisco a road to be proud of. It is hoped that this road will be the beginning of a highway extending from San Francisco to Los Angeles.

NEW AUTO TIRE FACTORY IN N. Y.

A tire manufacturing concern—the Ajax Standard Rubber Co.—backed by twenty-one automobile manufacturers who will use the tires produced, has secured a building at the foot of East One Hundred and Sixth street, New York, and is engaged in installing the necessary plant for the manufacture of automobile tires; it is understood that raw material is in preparation and that the actual work of making tires will be commenced about January 1, 1906. The automobile builders interested are the members of the American Motor Car Manufacturers' Association, an organization composed of manufacturers who do not acknowledge the validity of the Selden patents held by the Association of Licensed Automobile Manufacturers, and the object of the movement is to secure independence of the alleged pool composed of a majority of the American tire-makers. It is proposed that the independent manufacturers shall take stock in the tire concern in proportion to their consumption of tires; in this way the dividends, if any, will reduce the cost of tires to the automobile builders, though the present prices will not be cut.

The Ajax Standard Rubber Co. has been organized with a capital stock of $100,000. Among those prominent in the movement are J. S. Couzens, of the Ford Motor Co.; Benjamin Briscoe, of the Maxwell-Briscoe Motor Co.; R. B. McMullen, of the A. M. C. M. A., and A. C. Newby, of the National Motor Vehicle Co. The actual work of manufacturing tires will be carried on under the superintendence of Horace de Lisser, who was formerly sales manager for the International Automobile and Vehicle Tire Co., and who understands the manufacturing processes involved.

It is reported that if the project achieves the success that is anticipated by the organizers, the field of operations will be extended to include wheels, bodies, and other parts that automobile manufacturers are in the habit of purchasing.

A BUSY INVENTOR.

Illinois Man with Anti-Skid Tire Protector and Other Devices.

DE KALB, ILL., Dec. 23.—Henry F. Condon, an inventor of this city, who some time ago turned his attention to automobiles, has applied for patents on four inventions, as follows:

A tire protector and anti-skid device; an irreversible tiller lock; a four-wheel steer running gear, and a four-wheel drive.

The tire protector consists of a belt of steel plates each about three-fourths of an inch broad and as long as the wheel rim is wide. In each plate is a longitudinal and a transverse V-shaped ridge, the two crossing at the centre of the plate. These plates, which are curved, are laid edge to edge so as to lie upon the tread of the tire, and are connected together by means of a series of small steel bars that lie in the longitudinal grooves and are held in place by pivots driven through the ridges. To attach the protector, the tire is deflated sufficiently to allow the ends of a master link to be connected when the band is in place. Then the tire is pumped up and the concave plates conform closely to the shape of the tire, the whole belt being drawn tight. The continuous ridge in the centre of the tread prevents side slip, while the transverse ridges give the tire good traction on slippery surfaces.

The inventor says that each belt will weigh about six pounds, a set thus adding twenty-four pounds to the total weight of a car, and that by its use punctures will be prevented. The inventor says that he has a model of the belt in an eastern factory which is to manufacture the device for the market. He does not explain the three other devices, further than to say concerning the tiller lock that it will prevent the steering lever in the hands of the operator from swerving back and forth and from being suddenly jerked out of his grasp. This he plans to apply to his four-wheel steering arrangement.

In DeKalb county and adjoining counties Mr. Condon has an interesting history. He is drawing royalties on thirty-one patents that have been granted to him. For years he has been the right-hand man of Joseph Glidden, who has drawn more than $1,000,000 from royalties alone on a patent on barbed wire.

It may be said that DeKalb is a town of mechanical inventions; it is doubtful whether another in the state of its same size has a more inventive turn of mind.

There are now about twenty-five automobiles owned and operated in the city. There are four electric cars that are kept charged at the electric light plant. One machine is owned by a creamery man who makes the rounds of his creameries in an automobile. The different owners guarantee a joint sum of money in repairs to keep a repair man and garage located in the town. The surrounding country is reached by some of the best roads in Illinois, and they lead over some of the most attractive Prairie State country.

RECENT INCORPORATIONS.

Dac Automobile Supply House, New York; manufacture and deal in automobile parts; capital, $500. Incorporators: Edward S. Griffing, George A. Burkhard, John D. Craig.

Gaulois Tire Company, New York; manufacture vehicle tires; capital, $500. Incorporators: Edward S. Griffing, George A. Burkhard, John D. Craig.

The Appel Spherical Motor Company, Cleveland, O.; capital, $150,000. Incorporators: Daniel Appel, Otto Horix, F. E. Schucister and H. J. Fisher.

Commercial Motor Car Company, New York; capital, $10,000. Directors: P. S. Russell, J. Ingle, Jr., and M. E. Cunliff.

Northern Motor Company, Chicago, Ill.; capital, $15,000. Incorporators: Gordon L. Grey, George A. Rowell, Henry A. Ritter.

Pneumatic Ball Tire Company, Jersey City, N. J.. Manufacture and trade in india rubber and other gums, manufacture automobile supplies, etc.; capital, $3,000,000. Incorporators: F. A. Magowan, Brown McDonald, F. B. Adams.

Automobile Trade Credit Association, New York; capital, $1,000. Directors: F. J. Alvin, E. J. Willis, J. E. Murray.

C. A. Mezger, Ins., New York; capital, $5,000; manufacture spark plugs and motors. Directors: M. Mezger, R. M. Owen and Z. Owen.

New Jersey Touring Company, Atlantic City, N. J.; capital, $60,000; operate and build self-propelling vehicles and vessels for land or water. Incorporators: D. W. Hughes, W. P. Bushell and L. T. Layton.

Motor Vehicle Garage Company, Buffalo, N. Y.; automobile garage; capital, $20,000. Incorporators: J. MacNaughton, F. L. DuBroy and M. D. Ashford.

Cleveland Cycle and Auto Company, Buffalo, N. Y.; manufacture motors, engines, automobiles, etc.; capital, $2,500. Incorporators: J. MacNaughton, F. L. DuBroy and M. D. Ashford.

Park Square Motor Mart Garage, Portland, Me.; capital, $100,000. President, G. A. Hutchins; treasurer and clerk, C. H. Tolman.

A. W. Gump Automobile Company, Los Angeles, Cal.; capital, $25,000. Directors: A. W. Gump, E. B. Gump, Carl Kuen.

News and Trade Miscellany.

That Detroit automobilists are taking a keen interest in the coming Florida races is evinced by the announcement of the Seaboard Air Line that car "B," leaving New York on Sunday, January 21, has been reserved entirely for Detroit automobilists.

The importers of automobiles who will exhibit at the Madison Square Garden automobile show have arranged with the customs officials to have cars which arrive within a few days of the opening on January 13 taken direct to the Garden without waiting for the official inspection. This will save much time and bother in the case of cars arriving at the last moment.

Under the name of the Motor Car Owners' Garage Co., a number of New York men propose to organize a company for the purpose of erecting and maintaining a first-class garage for the benefit of stockholders, whose cars will be cared for and repaired at the lowest possible rates and in the best manner. It is proposed to erect the garage somewhere between Thirtieth and Sixtieth streets and Fifth and Ninth avenues, New York, and to equip it in the most up-to-date manner. A circular letter setting forth the plans of the proposed company and offering stock for sale has been issued by H. W. Poor & Co., 33 Wall street, New York.

At a recent meeting of representatives of the automobile clubs of New Jersey it was determined to keep a careful watch on the doings of the state legislators with reference to automobile restrictions. The automobilists have been stirred up by reports of the preparation of all kinds of drastic and "freak" bills seeking to "regulate" the automobile.

At the annual meeting of the Twin City Automobile Dealers' Association of St. Paul and Minneapolis, on December 22, the following officers were elected for the coming year: President, A. W. Strong; vice-president, W. E. Wheeler; secretary, H. S. Haynes; treasurer, E. H. Moulton, Jr.

Negotiations have been closed by Webb Jay, manager of the Chicago agency of the White Sewing Machine Co., for the lease of the five-story building at 240 Michigan avenue. The new quarters of the branch will open there about the first of next year. It is the intention of the company to establish a Western distributing branch in Chicago.

Smith & Mabley, of New York, have opened a branch in Chicago, with the Hamilton Automobile Co., of 1337 Michigan avenue, as agents.

The first automobile license number issued by the London, England, county council, A 1, is carried by a White steam car owned by Earl Russell. The number has been used on a number of cars successively owned by the earl, but has recently been transferred to his latest machine, the White car.

A complaint against the freight rates on rubber tires has been filed with the Interstate Commerce Commission by the Fisk Rubber Co., of Chicopee Falls, Mass., the company charging the railroads operating west of Chicago with discrimination against rubber tires, chiefly through classification. Other rubber manufacturers are said to be in full sympathy with the Fisk company in making the complaint.

A hill-climbing contest is being planned by automobilists of Los Angeles, California, and if the plans are carried out it will be the biggest event in the automobile line ever held in California. The climb will probably be held in January and a hill favorably thought of is one between Pasadena and Altadena. Neither date nor location has been definitely decided upon, however, though these and other matters will be settled within a short time. It is thought that all events will be for stock cars exclusively.

One of the centers for the automobile trade during show week will be the Hotel Navarre, New York. This hotel, which is strictly fireproof, is in the heart of the Thirty-eighth street automobile district, just away from the rattle and roar of Broadway, at the corner of Seventh avenue and Thirty-eighth street; it is at the same time quiet and accessible. The proprietors, Messrs. Stearns and Dabb, have established a reputation for maintaining first-class service at reasonable rates. The Dutch grille will doubtless be a favorite resort of parties after the show.

It has been definitely decided that a Maxwell four-cylinder touring car of 32-40 horsepower will be shown at the New York show; also a truck, a delivery wagon, a limousine body on a Model H, a Model H, a Model L runabout and a Gentleman's Speedster. The Maxwell-Briscoe company will manufacture eight models during the season of 1906 as against the two models with which it started business.

A road race from Chicago to either Milwaukee, Wis., or South Bend, Ind., is being planned for the early spring by Jerome A. Ellis and some other Chicago racing enthusiasts. E. F. Meyer has already started the ball rolling by offering a cup valued at $1,000.

Judge Barnes, of Chicago, has upheld the findings of the police justices of Evanston in the cases of Robert G. Tennant, Ernest Stevens and E. C. Stokes, who were charged with violating the speed ordinances. The cases were appealed and the police testified to the speed of each, saying a system of signals and stop watches was used which could not be otherwise than infallible.

The suit of the New York Automobile Co. against the H. H. Franklin Mfg. Co., seeking to restrain the latter from building the four-cylinder air-cooled motors designed by John Wilkinson and demanding an accounting for all profits made from the sale of automobiles equipped with such motors, was decided against the plaintiff on December 9. Plaintiff based action on the charge that Wilkinson had been induced to leave its employ for that of the Franklin Co. by the latter; and that the designs incorporated in the Franklin motors were the rightful property of the New York Automobile Co.

A trackless trolley system across Belle Isle bridge, at Detroit, may be built in time for the summer of 1906. Consulting Engineer A. S. Hatch reports the plan feasible from a mechanical point and says it will cost about $52,000. His plan calls for eight cars of a seating capacity of forty passengers each, and a carrying capacity of about seventy-five. The council committee will report on the proposition and a special session of the council will probably be called to finally decide the matter. There are now five companies waiting to bid on the system, one in Boston, two in New York and two in Detroit—the Commercial Motor Vehicle Company and the American Electromobile Company.

A trial will be made in Pittsburg shortly of an automobile chemical engine that will be an innovation in fire-fighting apparatus. The machine will be a 45-horsepower Pierce chassis with extra long wheelbase. It has been ordered by the Bankers Brothers Company, which will equip it with two 50-gallon chemical tanks, six small fire extinguishers, ladders, hose, and the usual equipment of a chemical wagon. There will be room on the running boards for ten firemen. The car will have sufficient capacity to fight small fires or to handle big ones at the start. It will have high speed, which will give it an immense advantage in getting quickly to fires in the remote parts of the residential districts.

Carr & Son, of Lansing, Mich., have placed in service on their hack line a new Oldsmobile hotel omnibus which is the latest construction of the Olds Motor Works. The 'bus has a seating capacity for twelve persons. It is entirely enclosed by curtains, provided with windows, and the driver's seat is similarly protected. It is lighted from storage batteries and heated by a system of piping from the exhaust.

The county commissions have decided that they have no authority to deny the right of the roads between Urbana and Mechanicsburg, O., to the line of auto stages being operated between the two places. After considering a petition from the farmers demanding such action because of the threatened runaways caused by the cars, the commissioners found that as the company operating the line had made no application to them for a franchise, they had no authority in the matter, as the state law gives such people the use of the highways. The farmers are endeavoring to catch the automobiles running at a rate in excess of the limit, which is fifteen miles an hour. Unknown persons have also placed logs on the road which the machines traverse, but so far no damage has resulted.

Plans have been made and a site selected for a new factory for the Wayne Automobile Co., of Detroit, Mich., and it is anticipated that the whole of the new plant will be in running order by next spring, though the contract calls for the completion of certain parts, including the power plant and testing building, by January 15. The works will be on the northwest corner of Piquette avenue and Brush street, Detroit, the main building to have a frontage of 400 feet on Brush street and 300 feet on Piquette avenue and a height of three stories. The testing building, 100 by 36 feet, will be back of the main building. The engine and boiler room will be 30 by 45 feet, and there will be a covered loading platform 150 feet long and 16 feet wide. A private track inside the grounds will be used for testing the cars. All the buildings will be of mill construction and will be fitted with sprinkler systems as a protection against fire.

The board of aldermen of New York City has authorized the expenditure of $10,000 for two automobiles to be used in place of horse-drawn vehicles for the use of heads of bureaus under the control of the president of the Borough of Manhattan. The automobiles are to be purchased without advertising for bids.

The Union Tea Company, of Philadelphia, is contemplating replacing its horse delivery service with automobile wagons. A single-cylinder Knox delivery wagon has been purchased, and accurate data of its performances will be kept, with a view to comparing the two methods.

Mayor Todd, who is promoting a good roads convention, to be held in Jackson, Mich., announces that the date will probably be set for January 4. A number of speakers of reputation will be secured, and the demonstration will be one of the largest ever held in the State.

Ford cars are likely to be well represented in Philadelphia next year, Manager L. E. Hoffman, of the local store, having already booked orders for nine of the 1906 six-cylinder cars and eighty-nine of the Model N type.

The Douglas Andrews Company, of New York, has secured the selling agency for the entire output of the factory of the Berkshire Automobile Company of Pittsfield, Mass., and will handle the output direct, placing no agencies. In all probability he will open stores in the large cities.

William Dominick, president of the Chicago Automobile Club garage, has built a four-cylinder engine that has several striking innovations. He is now organizing a company to place a new car fitted with his engine on the market. It will be called the Dominick.

Among the recent agencies established in Philadelphia are: The Penn Motor Car Company, 680 North Broad street, which will handle the Mitchell line; and the Hamilton Automobile Company, 206 North Broad street, which will represent the Stoddard-Dayton.

The Miami Automobile Co., of Miami, Fla., incorporated some months ago, has taken the agency for the well-known Reo, Pope-Hartford and Pope-Tribune cars.

The American Motor Car Co., Indianapolis, Ind., has removed its factory to the Atkins building on South Capitol Avenue, and is now installing a complete machinery equipment, preparatory to the manufacture of its four-cylinder cars in quantity.

The Reo Motor Car Company has closed the following agencies for the handling of the Reo cars: Southern Ohio and northern Kentucky, Joseph T. Montfort, of Cincinnati; St. Louis, The Colonial Automobile Co., of 3944 Olive street; Sioux City, Ia., and vicinity, H. Bernard Hallam; Newark, N. J., Harry R. Drake & Sons.

J. A. Cramer, the automobile dealer of Buffalo, N Y., is now fitting up a portion of his salesroom for the display of a complete line of automobile sundries, which he has arranged to handle.

The Eastern Automobile Company, of Philadelphia, Pa., handling the Peerless and Stevens-Duryea cars, having outgrown its present quarters, is now building an addition to its establishment on North Broad street, which will give the company several times its present capacity.

The erection of a brass and iron foundry has just been started by the Standard Roller Bearing Co., of Philadelphia, Pa. The new building is to be 60 by 125 feet, two stories in height.

J. W. Hayden, of 1337 Michigan avenue, Chicago, announces that he has been appointed exclusive agent for Prest-O-Lite gas tanks.

C. W. Kelsey, sales manager of the Maxwell-Briscoe Motor Car Co., has invented a new suspension or shock absorber, which is attracting attention. It acts only on the rebound of the spring, and while giving the spring a chance to perform its full function, nullifies the effect of a bump in a way that makes tonneau riding exceedingly comfortable. The suspension has been tried on Maxwell cars with success, and a company has ben organized to manufacture and market.

H. W. Doherty, with headquarters at 1024 Boylston street, Boston, has been appointed New England representative for Dolson cars.

The Essex Automobile Company, agents in Lynn, Mass., for Pierce, Ford and Cleveland cars, has opened an office and salesroom at the Oxford Garage, 197 Broad street.

The Iron Clad Manufacturing Company, of Brooklyn, N. Y., followed its annual custom on Saturday, December 23, of presenting each of its 1,500 employees with a Christmas basket containing all the good things required for a fine dinner.

The Mexican agency for the Panhard cars has been given to Charles L. Seegar, of the City of Mexico.

The annual meeting of the Bay State Automobile Association will be held on Monday, January 1, 1906, at the clubhouse, The Casino, Auburndale, Mass., at 3 P. M.

The New York agency for Hotchkiss automobiles has been secured by Archer & Company.

The Waverly Electric Automobile Company, Atlanta, Ga., agents for the Pope-Waverly Electric vehicles, have opened a handsome showroom on North Pryor street, opposite the Marion Hotel.

Howard P. Foster, of Bay Shore, L. I., has secured exclusive rights for the Wayne car in Brooklyn and Long Island.

Hatch & Company, New York agents for the Compound cars, have opened their new headquarters at 1655 Broadway.

On January 1, 1906, an automobile garage and repair shop will be opened in Memphis, Tenn., at 346 Madison street, by Frank C. Blomberg & Company, who have secured the agency for the Baker electrics and the White and Thomas cars.

Injunctions have been issued against the Columbia Dry Battery Co. and the Vim Co., of Chicago, forbidding them to offer for sale batteries bearing the name "Columbia." Suit was brought by the National Carbon Co., of Cleveland, O., which owns the trade-mark "Columbia," and the injunctions were issued December 12.

The chassis of the regular 16-horsepower touring car of the Reo Motor Car Co., of Lansing, Mich., is used not only for the Reo coupé, described in THE AUTOMOBILE for December 21, but also for the Reo ten-passenger wagonette; in fact, the three bodies are interchangeable, and the change from one to another can be made in an hour's time.

John R. Bensley, who was connected with the Western Automobile Company, of Chicago, when that concern had the agency for the Maxwell cars, is now associated with the Holmes-Schmidt Motor Company, present agents for the Maxwell Company in Chicago. This latter company has also secured the services of C. H. Plumb, formerly with the Mead Motor Company.

The Mead Motor Company, of 1243 Wahash avenue, Chicago, has relinquished the agencies for the Glide, Moline and Gale cars, and during the coming season its energies will be devoted to the marketing of the Benz cars, of which this company is the sole American importing agent.

The Branstetter Motor Company, handling the Queen car, has opened at 1337 Michigan avenue, Chicago.

The Grout line of cars is to be handled throughout New England by H. H. Hawkins, formerly manager of the Boston agency for Darracq and Franklin cars.

The agency for the Maxwell car in Dixon, Ill., has been taken by Phil Miller.

T. B. Van Alstyne, sales manager of the St. Louis Motor Car Company, of Michigan avenue, Chicago, while returning from a recent trip to New York, stopped off at Binghamton long enough to marry one of Binghamton's prettiest girls.

The recently organized Hamilton Automobile Company, of Chicago, has opened temporary headquarters at 1337 Michigan avenue. B. C. Hamilton and B. G. Sykes, until recently with the Chicago branch of the Locomobile Company, are prominently connected with the new company, which is now arranging to handle Smith & Mabley's complete line.

The Buick Motor Company, of Jackson, Mich., sold through its Chicago branch recently three model C cars to the Rosswell Automobile Company, Roswell, N. M. The cars are to be put in service to carry passengers, baggage and U. S. mail between Roswell and Torrance, N. M., a distance of 111 miles, the contract with the government calling for two trips daily, each trip to be completed in seven hours, under penalty of a $250 fine for every default.

INFORMATION FOR BUYERS.

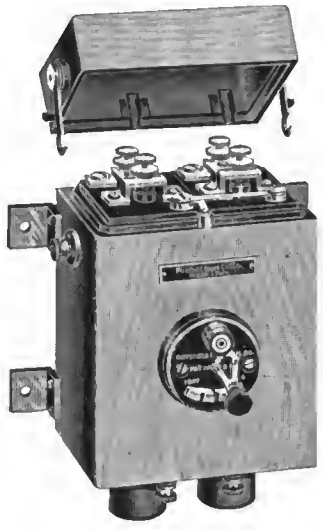
DRY STORAGE BATTERY.—The dry battery and the storage battery each possess their peculiar points of advantage for ignition work and in order to combine as many of the good points as possible in a single battery, the Royal Battery Co., of 143 Chambers street, New York, have placed on the market what is called a dry storage battery under the trade name of "Geecee." Instead of the liquid electrolyte ordinarily used in storage batteries the Geecee battery is filled with a gelatinous substance which, the manufacturers state, is capable of retaing moisture indefinitely; at the same time it cannot be spilled, and it acts as a separator for the plates, which are thus held firmly in position and short circuiting is prevented. A layer of white wax placed on the top of the electrolyte prevents it from shaking loose. The manufacturers also state tbat the plates are made of a new alloy; the positive plates are guaranteed for two years and the negative plates for three to four years. The jars are made of fiber, which is strong and yet light; a leather carrying strap makes the battery easy to move about. The trimmings, screws and binding posts are of nickled brass. Batteries are shipped fully charged and the battery as a whole is guaranteed for two years. The same company manufactures a charging outfit for charging Geecee batteries; this can be used wherever a direct current of 110 or 220 volts is available. A convenient novelty is a pole-finder which consists of a special paper strip which, when wet with water and brought in contact with the two wires of any circuit, will turn red at the negative pole. This is a positive test and should be very useful in cases where there is any doubt as to the polarity of the terminals.

NON-FREEZING SOLUTION.—An interesting leaflet on the subject of anti-freezing solutions has been issued by Thos. B. Jeffrey & Co., of Kenosha, Wis., manufacturers of the Rambler automobiles. A thirty per cent. solution of a mixture of half wood alcohol and half glycerine, the leaflet sets forth, will not freeze at a temperature of 15 degrees below zero, according to Henry Souther, and the deleterious effect on the metals of the circulatory system is probably less than that of any other solution available. A small quantity of wood alcohol added from time to time replaces what is lost by evaporation, and water also, in greater quantity must be added; the glycerine does not evaporate.

LOCOMOBILE RACING PICTURES.—A set of

twelve souvenir postal cards bearing as many different views of the 90-horsepower Locomobile racer driven by Joseph Tracy in the Vanderbilt Cup Race has been issued by the Locomobile Co. of America, of Bridgeport, Conn., and gives an excellent idea of the appearance of the car which finished third in that contest. The cards show the start, the finish and various intermediate incidents, speed on the straight stretches, taking the risky corners and stopping for supplies.

PITTSFIELD IGNITION APPARATUS.—The vibrator coils that are being manufactured for the season of 1906 by the Pittsfield Spark Coil Co., of Pittsfield, Mass., are said by the makers to be original throughout and to be extremely rapid and efficient in action, economical in current consumption and susceptible of a wide range of adjustment. The manufacturing plant is being enlarged so that its capacity will be doubled within a short time. The new coil has a vibrator of what the makers term a semi-hammer-blow type and the construction is such that the sticking or "freezing" of the contacts is obviated and the wear of the platinum points greatly reduced. The armature is independent of the main spring at the contact end; the armature on making contact does not stop abruptly, but swings on a little, gathering force for the return. When it swings back it exerts considerable force tending to separate the contact points and, if there is a tendency to "freeze," jerks them apart. A wide range of adjustment is secured by providing, in addition to the tension adjusting screw in the block, an auxiliary tension spring, so proportioned with relation to the pitch of the thread on the adjusting screw that it can only be adjusted to a point where the maximum consumption of current compatible with economical operation is reached. Provision has been made for taking up wear in the adjusting screw, and the friction is sufficient to prevent any possibility of jarring out of adjustment. The length of spring between the block and the armature is very short and this, combined with the double spring arrangement, gives exceedingly rapid vibrations and makes the coil quick in action. The platinum point on the vibrator is attached to the spring, and not to the armature; it projects through the armature and when brought against the stationary contact is cushioned by the spring; this arrangement avoids the hammering and wasting of the platinum. The illustrations give a good idea of the general appearance of the Pittsfield coil. The Pittsfield ignition current switch is also illustrated, and, as will be noticed, is made with unusually substantial parts. The swinging end of the lever is fitted with a wedge-shaped contact piece which drops into recesses, of similar shape, between the blocks, making close and positive contact and remaining secure from accidental movement, as the lever must be raised before the wedge can leave its recess. The handle can be removed by turning it round at right angles to its central position. Another product of the Pittsfield Co. is the Jewel mica insulated spark plug, which has been newly designed for the 1906 trade. The mica core is ground to a bevel which exactly fits an accurately formed bevel in the shell. By inserting the core in the shell and tapping it lightly the surfaces are brought together gas-tight. The core is as easily removed by rapping it in the opposite direction. A simple brass terminal is usel for making connection with the high-tension cable.



PITTSFIELD DOUBLE COIL.

PITTSFIELD IGNITION CURRENT SWITCH.

ATTRACTIVE ADVERTISING.—A 1906 calendar recently issued by the Detroit Steel Products Co., of Detroit, Mich., is an unusually artistic piece of work. The calendar proper is mounted on the lower part of a dark gray cardboard 20 inches high and 16 inches wide; but the feature is the head of a Cheyenne chief done in subdued colors and covering the larger part of the mount. The head is so deeply embossed as to present almost the appearance of a bas-relief; the general effect is excellent, and represents an unusually high class of advertising work.

AUTO JACK.—The satisfaction of having a reliable jack at hand for use in case of an emergency ought to be appreciated by all automobilists. A very powerful jack that occupies but little space in the tool-box is the Covert Automobile Jack, of which the Covert Mfg. Co., of Troy, N. Y., is sole manufacturer.

POPE DESK CALENDAR.—The desk pad calendar which has come to be a regular annual issue of the Pope Mfg. Co., of Hartford, Conn., has appeared for 1906, in its usual convenient form, with a leaf for each day. Each leaf has a space for memoranda, and an occasional leaf bears a record of some Pope automobile achievement of particular interest. The calendar is a familiar sight on the desks of those interested in the automobile.

OLDSMOBILE SOUVENIRS.—A set of handsome colored picture post cards illustrating incidents in the transcontinental race between two Oldsmobile runabouts has been issued by the Olds Motor Works, of Lansing, Mich., and forms an attractive souvenir of the event. The difficulties, dangers, bad roads and so on are graphically shown and the conclusion reached after looking at the cards is that the winner certainly earned his prize.

SHAPES OF WIRE.—Anyone who holds the idea that wire is necessarily round in cross-section will learn a good deal by reading the November number of the American *Wire Rope News*, the house organ of the American Steel and Wire Company, published at The Rookery, Chicago. A very interesting short article is illustrated by engravings showing the various forms taken by modern soft steel and brass wire. Pinions are quickly and inexpensively made by sawing slices from a length of pinion wire; and the metal is also drawn to the form of mouldings, gun ribs, channel forms and numerous other irregular shapes. Each form is the result of the needs of some class of manufacturers, whose work is much facilitated by the special forms.

AUTOMOBILE SCHOOLS.—The scarcity of good chauffeurs and practical automobile mechanics, as well as the desire of owners and prospective owners of cars to know more about their machines, has caused the establishment of a number of automobile schools in various parts of the country. These schools give practical and, in some cases, also theoretical instruction regarding automobiles, their construction and operation and their adjustment and repair. Among these schools are the Hub automobile school, of 195 Freeport street, Dorchester, Mass.; the Foljambe school, of 70 Stanhope street, Boston, and the Y. M. C. A. school in Indianapolis, Ind. The student at any of these can become thoroughly acquainted with the practical work of the chauffeur, both on the road and in the garage, under favorable circumstances as well as when in difficulties; for when trouble does not come uninvited on the road, the machines are put out of order purposely and the student is set the task of rectifying the trouble. The first mentioned schools have shops equipped with the requisite benches, vises and tools and also with automobile parts for examination; the last named school has access to the works of an automobile manufactory for the same purpose. Practical men are selected as instructors; they know just what the chauffeur will have to encounter, and prepare him accordingly. Detailed prospectuses are issued by the different schools and may be obtained by intending students on application.

STANLEY 1906 CARS.—An illustrated catalogue has been issued by the Stanley Motor Carriage Co., of Newton, Mass., illustrating and briefly describing the Stanley seam cars that will be placed on the market for the 1906 trade. These comprise a side entrance touring for five passengers; the wheelbase is 100 inches; boiler is 20 inches in diameter and the engine 3 5-8-inch bore and 5-inch stroke. A smaller side entrance touring car carries four passengers and has a 90-inch wheelbase, 18-inch boiler and 10-horsepower engine with cylinders of 3-inch bore and 4-inch stroke. The same size engine is fitted to a folding rear seat runabout. The foregoing models all have round front hoods, artillery wheels and wheel steering gear. The regular Stanley light runabout, with 16-inch boiler and 8-horsepower engine, cylinders of 3-inch stroke and 4-inch bore, is also listed. These machines may he had with either solid or folding front seats. A special speeding car for two passengers will be fitted with either 15-horsepower or 20-horsepower engine and will have wheel steering, wire wheels and divided front seats. In all models the engine, as in the past, is enclosed in a sheet copper casing which protects it from dirt.

MISCELLANY.

Continued increase in the size of automobiles and the growing popularity of limousine and landaulet bodies has created great difficulty in the loading of the vehicles into freight cars for shipment. A demand for end-door freight cars has been the result, and even thus early in the season a marked dearth in this class of cars has resulted. Although the railroads, almost without exception, declare that more of the end-door cars have been ordered, it is considered probable that they will not be ready for service much before spring. In the meantime shipments may be delayed. This condition was anticipated by the E. R. Thomas Motor Company, which has made an iron-clad arrangement with the railroads by which end-door cars must be delivered at the doors of its factory in sufficient numbers to meet the output of its plant. The benefit of this course has already been felt, deliveries being made on time where otherwise a delay of days, and possibly weeks, might have been caused.

An interesting experience was that of C. F. Steele and Joseph Germain, who delivered an automobile to C. G. Freeman, of Onaway, northern Michigan, the first one ever seen in that vicinity. The trip of seventy miles was made in a little more than seven hours, many stops being made to satisfy the curiosity of farmers. Travel was difficult, there being five inches of snow on the ground. The trip over the jack pine plains to Valentine lake was a lonely one, and from Valentine to Onaway, a distance of twenty-four miles, was still more dreary. Only one person was seen in thirty-six miles of travel, an old lady, the sole inhabitant of Valentine.

The Foss & Hughes Motor Car Company, of Philadelphia, have been appointed representatives from that city of the committee having charge of the beach races at Ormond, Fla., next month.

The Winton and Franklin agency managers in Philadelphia helped out the local Santa Claus Society by loaning it four automobiles to distribute among the poor the mountain of gifts its members had collected.

Philadelphia is to have a new automobile accessories establishment—the Penn Auto Supply Company. A "row" location is being sought by the manager, A. F. Justice.

The Maxwell-Briscoe Motor Company has finally decided on a Western location for an assembling plant, and has closed a deal whereby the company obtains possession of a large factory at the intersection of Seventy-third street, Kimbark avenue and the Illinois Central Railroad, Chicago. The acquisition of this plant gives the company 40,000 square feet of space, which will be put in service at once.

INDEX TO ADVERTISERS

Continued on page 42

PROMINENT AUTOMOBILE AGENCIES AND GARAGES

NEW YORK CITY

BAKER ELECTRICS *G.E.R.
C. B. RICE
'Phone, 2330 Col. 1790 BROADWAY

BUICK *G.R.
SIDNEY B. BOWMAN AUTO CO.
'Phone, 400 38th 50-52 W. 43d ST.

CLEMENT-BAYARD *G.R.
SIDNEY B. BOWMAN AUTO CO.
'Phone, 400 38th St. 50-52 W. 43d ST.

DECAUVILLE *G.E.R.
DECAUVILLE AUTOMOBILE CO.
'Phone, 476-38th 138 W. 38TH ST.

ELMORE *G.R.
A. ELLIOTT RANNEY & CO.
Telephone Connection 1951 BROADWAY

IMPORTERS *G.
AUTOMOBILE CORRE
231-233-235 W. 40TH ST.

JACKSON
GOTHAM AUTO CO.
Jackson Agency, 143 W. 29th St. 1655 BROADWAY

MITCHELL *G.E.R.
Motor Vehicle Repair & Storage Co.
'Phone, 2692 Madison 121-133 W. 51ST ST.

MORS *R.
AMERICAN BRANCH
'Phone, 3777 Plaza 41 W. 58TH ST.

NORTHERN *G.R.
PETER FOGARTY
'Phone, 4598 38th 142 W. 38TH ST.

PIERCE-ARROW *G.E.R.
HARROLDS MOTOR CAR CO.
'Phone, 525 Columbus. 1799 BROADWAY

PREMIER *G.E.R.
AMERICAN AUTO STORAGE CO
'Phone, 2440 Columbus. 40 W. 60TH ST.

RICHARD-BRASIER *G.E.R.
E. B. GALLAHER
'Phone, 1393 Columbus 329-336 W. 59TH ST.

ROYAL *G.R.
C. A. DUERR & CO., Inc.
Phone, 4130 Columbus B'WAY & 58TH ST.

WAYNE
WAYNE AUTOMOBILE CO. OF N. Y.
Phone, 4678 Columbus. 1658 BROADWAY

GARAGE CARDS
Cost Nominal; Service Unquestioned.
Address THE AUTOMOBILE,
FLATIRON BUILDING, NEW YORK

NEW YORK STATE

GARAGE *G.E.R.
FULLER & WALSH, Inc.
71-73 SOUTH BROADWAY
'Phone, 294 Yonkers YONKERS, N. Y.

GARAGE *G.R.
FRANK FLAHERTY
LAKEVILLE HOTEL, GREAT NECK, L. I.

GARAGE CARDS
Cost Nominal; Service Unquestioned.
Address THE AUTOMOBILE,
FLATIRON BUILDING, NEW YORK

BROOKLYN

BAKER ELECTRICS *G.E.R.
R. R. BENNETT.
'Phone, 2319 Prospect. 267-269 GREENE AVE.

BUICK *G.E.R.
The I. S. REMSON Mfg. Co.
'Phone, 1044 Williamsburg 748-758 GRAND ST.

JACKSON *G.E.R.
ORMOND AUTOMOBILE CO.
'Phone, 2142 Pros. Cor. Jefferson Ave. & Ormond Pl.

KNOX (AIR-COOLED) *G.E.R.
ARTHUR R. TOWNSEND
'Phone, 2422 Bedford 1149 REDFORD AVE.

LOCOMOBILE (Gasoline) *G.E.R.
The I. S. REMSON Mfg. Co.
'Phone, 1044 Williamsburg 748-758 GRAND ST.

MAXWELL *G.R.
LEWIS AUTO. CO.
'Phone, 1509 L. Bedford. 484-488 Hancock St.

POPE AUTOMOBILES *G.E.R.
A. G. SOUTHWORTH
342 Flatbush Ave., 10 Clinton St., 811 Union St.

NOTICE
For information about these cars
Address THE AUTOMOBILE
FLATIRON BUILDING, NEW YORK

NEW JERSEY

COLUMBIA *G.E.R.
COLUMBIA AUTOMOBILE STATION
KENTUCKY AND ATLANTIC AVES.
Wm. Fowden, Prop. ATLANTIC CITY, N. J.

GARAGE *G.R.
WALTER RICHARDS.
221 E. STATE ST.
'Phone Connection. TRENTON, N. J.

GARAGE CARDS
Cost Nominal; Service Unquestioned.
Address THE AUTOMOBILE
FLATIRON BUILDING, NEW YORK.

BOSTON

ACME *G.R.
BOSTON MOTOR CO.
'Phone, 192 Tremont 44 COLUMBUS AVE.

APPERSON *G.R.
GEORGE M. BROWN.
'Phone 192 Tremont. 43 COLUMBUS AVE.

ARIEL *G.E.R.
ARIEL MOTOR CAR CO.
Phone 211 Tremont 66-68 STANHOPE ST.

ATLAS MOTOR TRUCKS
FRED H. ADAMS, N. E. Sales Agt.
'Phone, 88-89 Tremont 641 TREMONT ST.

BERKSHIRE
BERKSHIRE AUTOMOBILE CO.
BOSTON OFFICE: 319 COLUMBUS AVE.

FRANKLIN *G.R.
A. R. BANGS
'Phone, 2609 Back Bay 801 BOYLSTON ST.

RELIANCE *G.R.
BOSTON AUTOMOBILE EXCHANGE
'Phone, 2443 Back Bay. 179 BERKELEY ST.

REO *G.R.
LINSCOTT MOTOR CO.
'Phone, 17 Tremont. 163 COLUMBUS AVE.

STEARNS
REED-UNDERHILL CO.
'Phone 624 Tremont 322 COLUMBUS AVE.

GARAGE CARDS
Cost Nominal; Service Unquestioned.
Address THE AUTOMOBILE
FLATIRON BUILDING NEW YORK

*NOTE—Letters in upper right hand corner of each card indicate as follows: G—Garage or storage facilities, E—Equipped to charge electric vehicles, R—Repair Shop.

PROMINENT AUTOMOBILE AGENCIES AND GARAGES

NEW ENGLAND

GARAGE *G.E.R.
BRANDEGEE'S GARAGE
Phone 600 325 State St., Bridgeport, Conn.

PEERLESS *G.E.R.
H. G. MARTIN & CO.
170 Albion St. PROVIDENCE, R. I.

CADILLAC *G.E.R.
GEISEL AUTOMOBILE CO.
*Phone, 608-4. 36-38 Dwight St., Springfield, Mass.

POPE TOLEDO *G.E.R.
GEISEL AUTOMOBILE CO.
*Phone, 608-4. 36-38 Dwight St., Springfield, Mass.

WINTON
CENTRAL AUTOMOBILE EXCHANGE
43 Foster Street WORCESTER, MASS.

NOTICE
For information about these cards
Address THE AUTOMOBILE
FLATIRON BUILDING, NEW YORK

FLORIDA

GARAGE *G.E.R.
CLARENDON AUTO GARAGE
*Phone Connection SEA BREEZE, FLA.

GARAGE *G.R.
C. R. ZACHARIAS
MIAMI, FLA.

CHICAGO

ACME
DEVLIN & CO.
*Phone, South 924 1407 MICHIGAN AVE.

ADAMS-FARWELL *G.R.
THE ADAMS COMPANY
Phone, Calumet 28. 1339 MICHIGAN AVE.

FRANKLIN *E.R.
PARDEE-ULLMANN CO.
*Phone, South 557. 1215-29 MICHIGAN AVE.

ELMORE (PATHFINDER) *G.R.
JOSEPH A. HILL
Phone, South 557. 1219-29 MICHIGAN AVE.

PACKARD *E.R.
PARDEE-ULLMANN CO.
*Phone, South 557. 1213-29 MICHIGAN AVE.

POPE AUTOMOBILES
ORLANDO F. WEBER CO
*Phone, South 1099 1322 MICHIGAN AVE.

STUDEBAKER *E.R.
STUDEBAKER BROS. MFG. CO.
*Phone, Harrison 4785 378-388 Wabash Ave.

TWO DOLLARS
will insure the regular weekly visits of THE AUTOMOBILE for one year Subscribe now

Induction Coils
Gives easily understood explanations of the operation of coils. Of great value to the entoist. By H. S. NORRIE. 265 pages. Numerous illustrations. Cloth, bound. Price, $1.00. Address The Automobile, Flatiron Building, New York.

SUBSCRIBE FOR THE AUTOMOBILE.

Tells the Time at Night
In the Daytime, Too. A Superior Timepiece.
Wilson Auto Clock
Dust-Proof, Water-Proof, Thief-Proof
Write for Booklet
Wilson Auto Clock Co., Inc.
925 Arch Street PHILADELPHIA, PA.

HERE'S THE PROOF

¶The two automobile factories located on the Burlington Route a year ago have already outgrown their first quarters and are making additions. We have other locations as good as we furnished them. Don't you want the details?

Burlington Route
P 120

Address
W. H. MANSS,
Industrial Commissioner
209 ADAMS STREET,
CHICAGO.

*NOTE—Letters in upper right hand corner of each card indicate as follows: G—Garage or storage facilities, E—Equipped to charge electric vehicles, R—Repair Shop.

The Practical Gas Engineer
What It Is and How To Do It. A book of 150 pages neatly bound in cloth. Sent postpaid for $1. Address Book Department, The Automobile, Flatiron Building, New York.

When your Auto isn't just right, use the
STILLSON AUTOMOBILE WRENCH
IT WILL OUTLAST ANY OTHER TOOL IN YOUR TOOL-BOX AND GIVE SATISFACTION AT ALL TIMES

The original, most efficient and durable. Used exclusively in all up-to-date garages, machine shops and all places where the best mechanics are employed. Sold by all leading auto-supply jobbers and dealers.
Write for circular and prices.
WALWORTH MFG. CO.
BOSTON, MASS. U. S. A.

Continued from page 39

SPECIAL NOTICES

Advertisements inserted under this heading at 20 cents per line; about 7 words make a line. Remittance should accompany copy. Replies forwarded if postage is furnished.

BEAUTIFUL black pacer, very speedy and clever, perfectly sound, age six years; will send photo; desire to exchange for 1906 runabout; must be in good condition; will pay the difference. Address W. C. LaFountain, Champlain, N. Y. Dec28

DESIGNERS wanted, experienced on gasoline engines, transmissions and truck construction; none but those having had experience along this line need apply, giving references, details of experience and salary wanted. Address "American," care The Automobile. Jan4

FOR SALE—One Buick, 2-cylinder, opposed motor. G. L. Lewis, 88 Lunenburg St., Fitchburg, Mass. Jan4

FOR SALE—15-tube radiator, $10; 24-tube, $15. A. M. Symonds, 901 No. Fairfield Ave., Chicago, Ill. t.f.

FOR SALE—1 9-h.p. engine transmission, spark coil and tanks, at a sacrifice if taken at once; $85 cash with order. S. L. O., care The Automobile. Jan11

FOR SALE—Rambler, 1904 model, 16-h.p., side lamps, headlight and side baskets; a good, powerful car, in A1 condition; $700. R. S. Whitney, Brunswick, Me. Dec28

FOR SALE—Dalmler delivery wagon in first-class condition. Price $400. Great bargain. Fairmount Engineering Works, 3207-11 Spring Garden St., Philadelphia, Pa. Jan11

FOR SALE—1904 Winton fully equipped with Baskets, Headlights, Searchlight, tools, etc., and in excellent condition. Robinson's Automobile Station, Worcester, Mass. Dec28

FOR SALE—1904 Pierce Arrow, 24-28-h.p., $2,000; cost $4,400 complete; owner going abroad; make me an offer. W. L. White, 1711 14th St., N. W., Washington, D. C. Dec28

FOR SALE—Packard, late 1903 Model F, recently overhauled at factory; will equip with brand new tires and sell for $750 cash; first check takes it. H. W. Beach, Montrose, Pa. Dec28

FOR SALE — Four-cylinder Locomobile, Model D, in first-class running order. Car has had best of care. Has sevsral extras; will sell for half price. Address J. H. M., Drawer V, New Haven, Conn. Dec28

FOR SALE—New 1906 Model F White Steamer, used but little; as good as ever. Regular price with standard equipment, $2,800. Will cut price some; need money. Located Ohio. H. J., care The Automobile. Jan4

FOR SALE—National electric runabout, Model B-105, with full leather top, side curtains and apron; never been run 1,000 miles. One 12-h.p. vertical double-cylinder engine, in good condition. Address X. Y. Z., cars The Automobile. Jan4

FOR SALE—Very cheap, Ford 4-cylinder, Ford 2-cylinder, Winton 2-cylinder, Rambler 2-cylinder, Improved Rambler E, 1-cylinder; Orient Buckboard, mostly 1905 cars; prices and descriptions extremely interesting; a card will bring the information. E. S. Youse, Reading, Pa. Jan4

FOR SALE—White Steamer, 1904 model, canopy top, plate glass wind front, touring baskets, pair of seven-inch gas lamps, as complete and neat-looking outfit as any White car ever equipped; car in perfect running condition; was looked over at the factory and pronounced in fine trim this season. First purchaser with $750 cash takes it. Address Norris Auto Co., Saginaw, Mich. Jan11

FOR SALE—Thomas Touring Car, 1904 model, 3-cylinder; seats five persons; perfect condition; thoroughly overhauled by factory recently. This car was driven by the owner 1,100 miles from Macon, Mo., to Buffalo without an accident, and never missed fire once on the trip. New tires this season. I refer to the E. R. Thomas Motor Co., of Buffalo, as to condition of car. My reason for selling is that I have purchased a larger type car. Price and full description on application. Address owner, William R. Compton, Macon, Mo. Jan11

FOR SALE—Packard 1902 Model F Touring Car; complete equipment of lamps, horn, tools; almost new tires; car in first-class condition; will make a splendid livery proposition, or can easily be converted into a delivery car, $475 cash takes it. Also one 1904 Oldsmobile Touring Car, 10-h.p., with canopy top and front plate glass wind-shield; complete equipment of lamps, horn and tools; only driven six weeks; car in all but brand new condition; $685 buys it. Also one Columbia Electric Victoria "Elberon" model, forty cells of battery, just overhauled by battery experts, and both battery and motors in practically new condition; double tube tires, two extra tires, leather top, for $750 cash. Don't let some of these bargains slip by; write us at once. Norris Auto Co., Saginaw, Mich. Jan11

FOR SALE—Packard Model L, first-class condition; recently thoroughly overhauled at factory; extra equipment, 4 1-2-in. Diamond tires on rear wheels; brass-plated Veeder dashboard odometer; Hartford suspension on rear springs; complete set of oil cups on spring bolts; Gray & Davis acetylene lamps, with Solar generator; B. & J. lock switch; T. P. C. tire pump; muffler cut-off for attaching Gabriel horn; large dope cup on dashboard feeding driving-shaft, steering wheel bearings, also two bearings on commutator shaft; cup has two extra feed-pipe connections; price, $2,300 cash. Autocar, tonneau fitted with extra seat; engine recently overhauled and put in first-class condition; guaranteed as good as new; tires extra heavy and recently purchased; full lamp equipment. If you want a first-class machine at a bargain write The Michigan Stove Co., 1022 Jefferson Ave., Detroit, Mich. Dec28

GREATEST BARGAINS in used automobiles ever offered in this country; 100 different styles. Tell us about what you want and we will send you descriptive matter. C. A. Coey & Co., 1323 Michigan Ave., Chicago. t.f.

MODEL B WINTON, fitted with canopy top, glass front, pair of large searchlights, brass side lights, tail light, extra tires and inner tubes. Weed chains, 1906 Model K Winton commutator and coil. Everything in first-class condition. Has seen very little use. Cost $3,100. Price, quick sale, $1,700. Apply The Reading Automobile Co., Reading, Pa. Jan11

PATENTS—Hubert E. Peck, 629 F. St., N. W., Washington, D. C. Consulting Expert in Patent Causes. Send for leaflet "Rejected Patent Applications." t.f.

TEN-PASSENGER WAGONETTE; sample car; 1905-6 model; steam; price and description on application. Thompson Auto Co., Olneyvills Sq., Providence, R. I. t.f.

WANTED—Second-hand four-cylinder automobile engine. J. Frank Weaver, Brooklyn, Conn. Dec28

WANTED—Capable instructors by progressive automobile school. Examination will prove fitness. Instructor, care The Automobile. t.f.

WANTED—Light steam condenser for 4-h.p. engine; aluminum preferred; must be a bargain; give size and weight. W. E. Connor, Houston, Tex. Dec28

WANTED—Your automobile tires and tubes to vulcanize. We also manufacture large vulcanizers; we save you 1-3. Chas. E. Miller, Anderson, Ind. Dec28

WANTED—By an important French manufacturer and exporter of general automobile accessories, a good, reliable representative in every city of the United States. Address C. A. F. A., care The Automobile. Dec28

8-PASSENGER electric 'bus, in good order; run one season; cost $2,000; will sell for $650; reason for selling, have purchased 16-passenger car. Address Loveless Transfer Co., Warren, Ohio. Jan4

16-H.P. ORIENT Tonneau, 4-cyl., air-cooled; one new shoe, two tubes Rushmore lights extra; owner wants room for larger car; new May, 1905; cash price, $950. Box 232 Yonkers, N. Y. Dec28

1905 MODEL—Side-entrance tonneau with double-cylinder opposed motor. Car is in fair condition and a bargain at $600. Manufacturers' Motor Car Co., 54-56 West 43d street, New York. t.f.

1905 NORTHERN touring car, in first-class condition. Engine is brand new, with 5 1-2-inch x 5 1-2-inch double-opposed cylinders, developing 20 horsepower; new brakes; tires, transmission and bevel-gear drive in first-class condition; machine run about 2,000 miles and carefully handled; no offer less than $1,000 considered. Address 33, care The Automobile. Dec28

1906 MODEL F White Steamer, with cape top and acetylene lamps and generator. Color, dark blue. New Diamond tires on all wheels. Car has been used for about one month. Guaranteed in first-class condition. Immediate delivery. Address W. M. D., care The Automobile. Dec28

The Entire Power Plant of the silent

Northern

EXHIBITED
NEW YORK
January 13th to 20th
Madison Sq. Garden
and at CHICAGO

The Original Encased Mechanism and The Original Three-Point Motor Support

We reproduce here the remarkable Northern engine and crankshaft, the original of which we exhibited at the Madison Square Garden January 19th, 1904, where its wonderfully smooth, quiet running qualities attracted wide attention. This construction originated from our factory and has been a success from the start. There have been many imitations, but the Northern is still the most conspicuous and remarkable example of compact, accessible and noiseless mechanism.

The Northern idea is "*refinement*"—by that we mean reduction of parts to the minimum. In the mechanism shown we have eliminated all unnecessary and delicate parts, and have produced an engine which insures the highest efficiency and least working parts, therefore the fewest wearing parts and least cost of up-keep.

The entire propelling mechanism is shown herewith, including fly-wheel, commutator, oil box, water pump and transmission gear. All mechanism, even the transmission gear, is put into the crank case, and the transmission gear being mounted on the crankshaft insures absolute alignment and *100 per cent. efficiency in transmission of power.*

The motor is placed on the frame in such a manner that it is supported on three points and slants downward 12 degrees, so that the crankshaft of engine lines up perfectly with the bevel gear in rear axle. There is only one universal joint; thus we get a direct and efficient application of power to rear axle. We are pioneers in this and absolutely the first manufacturers to take a direct run from fly wheel to rear axle.

We were also the *first* to cast fan-blades in the fly wheel, thus doing away with all fan troubles and securing maximum fan efficiency without the usual belt troubles and loss of power. Notice the large diameter of the fly wheel; it makes the motor balance better. Notice the *position* of the fly wheel; it will not gather and throw mud into the clutch and steering gear.

Watch the others follow us

Study this mechanism carefully. It requires no argument to convince you of its practical, trouble-saving, money-saving efficiency. Then write for Catalog and full information about

1906 MODELS

7-h.p. Sturdy Northern Runabout with Lamp Equipment - - -	$ 650.00
20-h.p., Two-cylinder Car with Gas and Oil Lamp Equipment - - -	1,800.00
20-h.p. Limousine " " " " " - - -	2,800.00
Model K, 30-h.p., Four-cylinder Car, with Gas and Oil Lamp Equipment -	3,000.00

Northern Manufacturing Company

DETROIT, U. S. A.

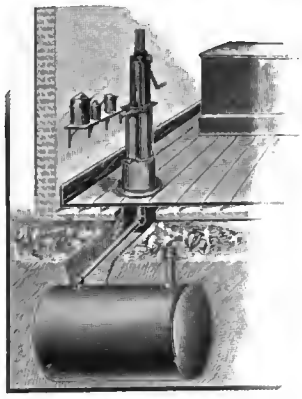
Member Association of Licensed Automobile Manufacturers

NEW YORK CITY AGENT

PETER FOGARTY, 142 West 38th St.

THE NATIONAL GASOLINE TANKS

¶ The National Long Distance Gasoline Storage Outfit, which permits of placing the supply tank under ground, the pump being inside the building. In perfecting this outfit we have observed to the letter the rules of the underwriters' Laboratories, and can recommend it to be the safest and most economical way of handling gasoline ever devised. ¶ This pump is one of our latest, Double Cylinder, which in operating there is no lost motion, every movement of the handle pumps and measures oil, saving time, labor and money. ¶ This outfit is especially designed for Automobile Garages. ¶ Ask for Catalogue.



The NATIONAL TANK CO., Inc.
DAYTON, OHIO

The Chaney Auto Cleaner

THIS is the article that you have been looking for. Why let your engine and other parts get greasy and look bad when you can buy a Chaney Auto Cleaner and keep them looking as bright as new? You will not soil your clothes or get your hands dirty, and the job is done in a very short time and a perfect job when it is done. It uses a cheap gasoline under air pressure. You know what gasoline will do to grease. This invention is a wonder. The price is $10.00 F. O. B. Terre Haute, Ind. Write for Circular C or order at once, you will make no mistake. If it is not satisfactory we will refund you your money. Made by

A. CHANEY MFG. CO., Terre Haute, Ind.

THE FAMOUS BUCKEYE JACKS

Are being adopted by the leading Manufacturers, Jobbers, Dealers and Users of Automobiles. They are easily operated, quickest in action, made from best MACHINE Steel Drop Forgings, BEST MADE, best finished and most durable Jacks on the market. A guarantee accompanies every Jack. Investigate before buying any other Jack and save trouble and money.

They are made only by

The Buckeye Jack Manufacturing Company

NORTH CHAPEL STREET
LOUISVILLE, OHIO

We Make

HOODS, FENDERS, TANKS
to your blue prints

RADIATORS
Flat, vertical tubes
Greatest efficiency per lb. of weight

MECHANICAL OILERS
Simple Exact Reliable

PRESSED STEEL DASHES
One Piece—32" to 38" wide

PRESSED STEEL FRAMES
Members only or assembled complete

MUFFLERS
Compact. Without back pressure

KINSEY MFG. CO.
DAYTON, OHIO

New York Show, Armory, Balcony, Room E
Chicago Show, Armory, Space A71

How to Know When Your Tire Gets Flat

HOW much money would it save you in a season if a bell rang as soon as one of your tires began to get flat?

Supposing this were possible.

For you know the *ordinary* tire begins to rim-cut as soon as the air begins to leak out.

And generally you don't know a thing about it until you are riding on the rim. Then it's too late, for the damage is done.

Nothing remains for you to do but say things unfit for publication and make the best of it. Isn't that gospel truth?

* * * *

Now there's a sure way to know when your Tire is leaking—without watching it—without worrying about it—without getting out of the car.

If you have the Goodyear Universal Rim on your car, it will sound an alarm before the air in your tire is exhausted to a rim-cutting point. And this is the way it does it:

The flanges of the Goodyear Universal Rim (which hold the tire in place) are circles of steel which slide on and off the base of the rim, as a ring slides on and off your finger. When both flanges are in place, a "key" ring or locking ring, keeps the outer flange from being forced off by pressure of the tire. When used for Goodyear Universal (the tire that wipes out 90 per cent of all tire troubles) the Universal Rim would be assembled like Fig. 1.

Fig. 1

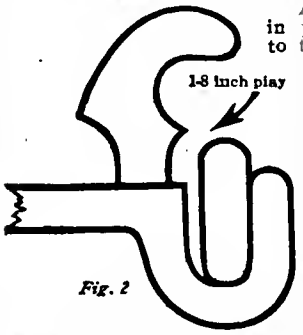


Fig. 2

As soon as the air in your tire leaks out to the danger point, it lets the outer flange slide inward slightly, except where the valve stem comes. This leaves about ⅛ inch play between the top of the locking ring and the bottom of the flange (see Fig. 2,) and just as soon as the air leaks out to the danger point, this binding ring begins to tinkle like a bell, saying to you plainly and unmistakably: "Shut Down! Stop!! Your Tire is beginning to rim-cut!!!" If you *heed* this call, you have saved the cost of a new tire.

* * * *

This is only *one* of the reasons why the Goodyear Universal Rim will preserve *any* tire to a hale old age.

There are others of even greater importance.

If you get a puncture, you can remove your tire to make the repair in 30 seconds—and it requires no tools but the hands. It's as easy to remove and put back a tire on a Goodyear Universal Rim as it is to put on and take off your cuffs, and it takes but little more time.

This is all there is to removing a tire from the Universal Rim. See how *easy* it is.

Unscrew the Thumb Nut which holds the valve stem tight against the rim. Push the valve Stem up into the Tire (this lifts the steel plate which holds the flanges in position.)

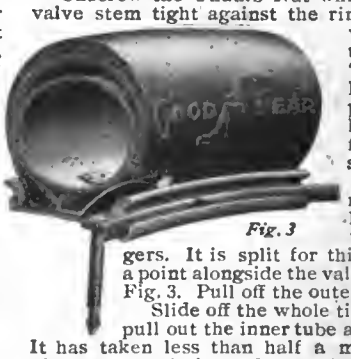


Fig. 3

Spread and remove the locking ring with your fingers. It is split for this purpose at a point alongside the valve stem. See Fig. 3. Pull off the outer flange ring.

Slide off the whole tire, or simply pull out the inner tube as you prefer. It has taken less than half a minute. And after the repair is made, another 30 seconds and you are ready to pump up.

* * * *

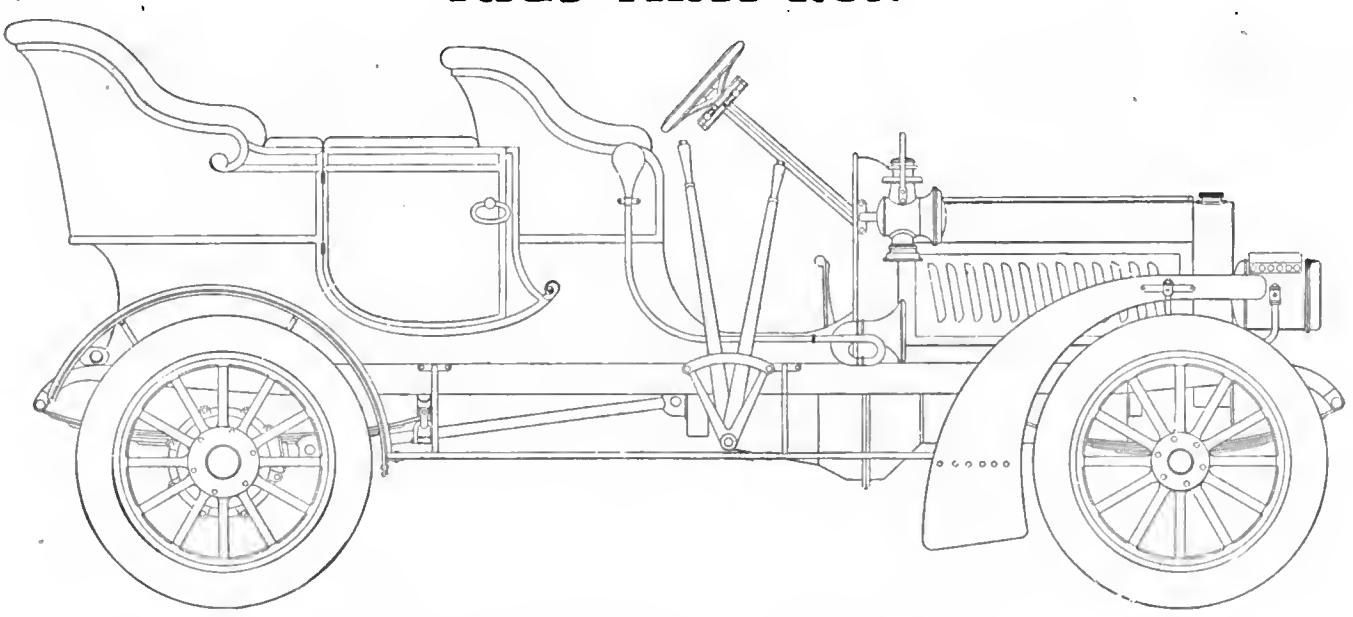
The Goodyear Universal Rim will take any Goodyear Tire (Detachable or Clincher) or *any standard clincher tire on the market.* If your car has Goodyear Universal Rims, you can have a tire of a different make on *each wheel* if you wish. And it will take less than a minute per wheel to change from one make of tire to another, *without the use of a single tool.*

* * * *

Get our "Good News Book" and see the many other convenient, money saving and time saving features of the Goodyear Universal Rim when used in connection with the Goodyear Detachable Auto Tire. This book will be found intensely interesting to the Manufacturer, Dealer or Rider, because it shows a sure way of relief from all tire troubles.

1906 ST. LOUIS 1906

"RIGS THAT RUN"



TYPE XVI, 32-36 ACTUAL H.P., $2,500.

Our 1906 Type XVI is the crowning triumph of fifteen years' experience in building gasoline automobiles. This model represents *everything good* in modern automobile construction. You cannot afford to pay more and you couldn't expect to pay less. Compare Type XVI with any other car listing from $3,000 to $5,000, and we doubt if you will find any vast difference other than the price. An agent should sell a car that will instantly appeal to all classes. Thousands of prospective purchasers are in the market—a few of them will insist on paying $5,000 and over; a few more will insist on $2,000 and under, but eight out of every ten will be the *between* class, if they can get the satisfaction at a reasonable price. Type XVI is between the two extremes (in price), but from closest observation we fail to see where it will not compare inch for inch with any car built in *America. A fair, unprejudiced comparison is all we ask.* It will carry five people comfortably at any speed from four to fifty miles an hour; absolutely noiseless; no vibration; will negotiate 22 per cent. grade on high speed. General finish, upholstering and trimmings cannot be surpassed, no matter what the price.

MOTOR. Four-cylinder, vertical, under-hood, water-cooled, developing 32-36 *actual h.p.* Entire construction highest grade. Muffler reduces noise to nothing. (Quietest car in existence.)

VALVES. All are mechanically operated, generous bearings (clamps special bronze) throughout. Large fan behind radiator.

CRANK CASE. Made of special metal. Instantly accessible aluminum side plates allow instant inspection of connecting rod, crank shaft, etc. Full metal pan under engine.

FRAME. Specially prepared pressed steel, channel section, 4 3-4 inch, tapered and reinforced. Motor and transmission integral, assuring perfect alignment under all conditions.

TRANSMISSION. Sliding type, three speeds and reverse, all gears made of special high carbon steel. All shifts made with one lever. Clutch metal to metal; mulitiple disc; load is taken up gradually. No matter how sudden the shift is made the jerk is *absent.*

CONTROL. New style rack and pinion with ball and socket joints to take up all wear. Spark and throttle control placed conveniently under steering wheel, also accelerator foot pedal to use if desired for *quick-speed changes.*

BRAKE. Three in number, any one of which will hold car on any grade. Same are controlled by both foot and lever at side of car. Application of foot brake throws out clutch, disconnecting transmission from motor.

AXLES. Front extra heavy dropped forged I-beam, guaranteed not to spring. Rear axle of the floating type, all equipped with timken roller bearings throughout.

DRIVE. Bevel gear, regular ratio three to one. We will furnish lower gearing upon request.

SPRINGS. Large half elliptic of the best quality obtainable. Front, 38 inch; rear, 48 inch. Three-point suspension throughout, allowing perfect riding over the worst road conditions.

Our cars contain many individual features of merit, which we have omitted to mention. Our new elaborate catalogue explains every detail and will be mailed upon request. Fifteen years' building experience has taught us the proper kind of material to use and how to use them correctly. We have simply covered the broad points of general construction that you may compare Type XVI with other makes costing nearly twice as much. Some cars may *cost more*—but none are better. We have not sacrificed one iota to cheapen our product. The material throughout is *good old St. Louis* quality from the ground up. Our name is on it, and our guarantee back of it.

LASTLY. We are fast closing all available territory, and our agency list will be closed solid before the New York Show. If we are not already represented in your immediate vicinity, you had better write for printed matter *at once.* Don't wait until show time and be among the *"also rans."* Our agency proposition is most entertaining—it *might* pay you to investigate.

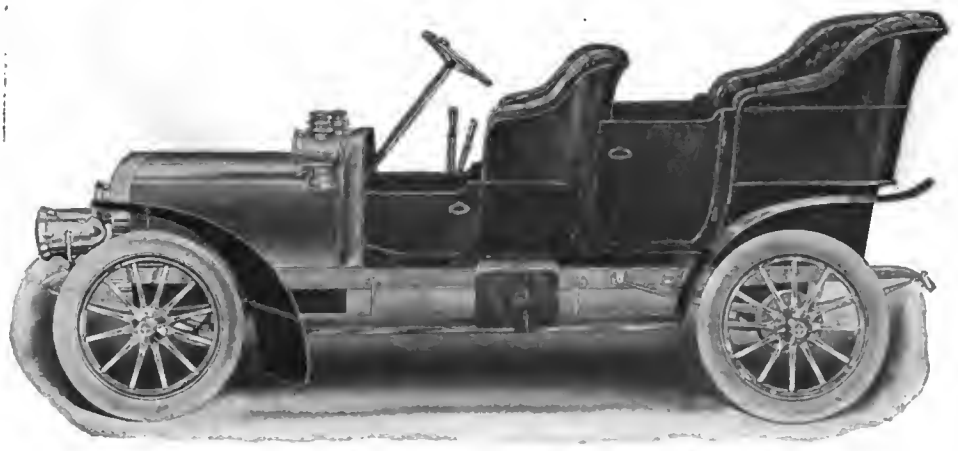
ST. LOUIS MOTOR CAR CO.

PEORIA, ILL.

SALES OFFICES—1229-31 MICHIGAN AVENUE, CHICAGO, ILL.

Aerocar

The Car of to-day, to-morrow and the years to come.
—Built by practical men.—



Here is the **One** motor car driven by a reliable, test-proven, air-cooled motor.

THE vital factor in every motor car is the motor.

All Automobile authorities—people who have had most experience—concede that many improvements are necessary in water-cooled motors—too many mechanical complications, too much weight, too many troubles.

The same authorities agree that in the reliable, success-proven, air-cooled motor lies the solution of most all motor car troubles.

The **Aerocar** has such an air-cooled motor. It has taken eight years of continual efforts, experimenting, testing, proving and many thousands of dollars to produce this reliable air-cooled motor, but the results sought have been secured, and they are well worth all the time, labor and money expended.

The air-cooled motor of the **Aerocar** is of wonderful efficiency in power. Runs with the uniform smoothness and rhythm of an electric dynamo—under all climatic comditions, over all sorts of roads. Has strength of construction with simplicity of control, giving great durability of service, develops continuous higher power for weight, and gives greater speed than any other motor.

In the necessary, the vital qualities for satisfactory service, the air-cooled motor of the **Aerocar** is supreme—in a class by itself—the motor that "motes" when you want it to serve you.

The body of the **Aerocar** compares most favorably with any car either foreign or American. It embodies the best features of each, is graceful in line, is luxuriously roomy and comfortable; is finished and upholstered strictly up-to-date.

Aerocar 1906. 24 h. p. Four cylinders. Five passengers. 45 miles an hour. 104-inch wheel base. Shaft drive. Sliding gear transmission. Three speeds and reverse. Leather-faced cone clutch. Hollow steel dash. Four sight lubricator on dash. Tool box on running board. 34 x 4 tires. 9-inch road clearance. Weight 2,000 pounds. Fully epuipped, ready for the road, including two large gas headlights, $2800 f. o. b. Detroit.

Will be exhibited and demonstrated at the Automobile Shows in New York and Chicago.

The dealer who has the selling agency for the **Aerocar** will have a gold mine. Territory being taken up rapidly. If interested write us promptly.

THE AEROCAR COMPANY
DETROIT, MICH.

THE MARMON

"A Mechanical Masterpiece"

Takes the Jolts out of Rough Roads

Anyone who has ever made a long run in an automobile knows what it means to be shaken, jolted and vibrated almost to the point of exhaustion.

And anyone thus experienced who takes one ride in a Marmon realizes instantly that its positive luxury of motion is not only unequaled, but absolutely unknown in other cars, regardless of price or prestige. The Picture shows why.

All roads present this condition in small or large degree—here a bump and there a rut, often forcing one wheel to ride through a depression while a wheel on the opposite side passes over an elevation. Unless the automobile possesses flexibility to meet these varying conditions, it means constant, ruinous strain for the mechanism and constant reaction upon the passengers, varying from vibration to jolting.

Other cars are constructed on much the same rigid principle as a farm wagon. In the farm wagon comfort is not considered nor is there any expensive mechanism to protect. This the automobile has attempted to remedy with springs and tires of various types. But the unnatural principle is still there. Strain and discomfort are still there.

The Marmon does not depend upon its excellent springs for elasticity. It possesses an exclusive patented feature

Double Three-Point Suspension

Cast aluminum body on one frame, power plant on another frame, **each frame** suspended on three **pivotal** points. Power plant and rear axle are practically a unit, always in alignment. Rigid shaft drive without universal couplings. Wheels adjust themselves to the roughest road condition. This elimination of binding and twisting strains means perfect power transmission, greater efficiency with less wear for all parts, **tires included.**

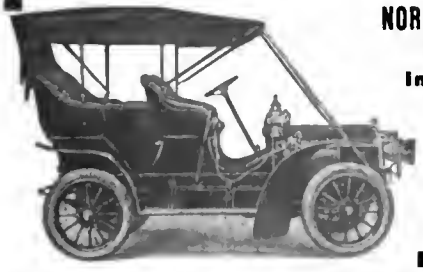
The Marmon oiling system (fully patented) has no equal. Starting and stopping with the engine a constant and uniform flow of oil is forced through the hollow crank shaft directly into all the main engine bearings, crank and **piston pin** bearings. Simple; unfailing; very economical; has no adjustments.

The Marmon is stylish, strikingly handsome and very quiet. The tonneau is practically dustless without the aid of attachments. Constructed with minute attention to detail. Replete with excellent, instructive and distinctive features.

Write for Booklet No. 2.

Ask us to show you at the Armory Show, New York.

Four cylinders, air-cooled { **Model C, Four Passengers, $2,500.** / **Model D, Five Passengers, $3,000.**

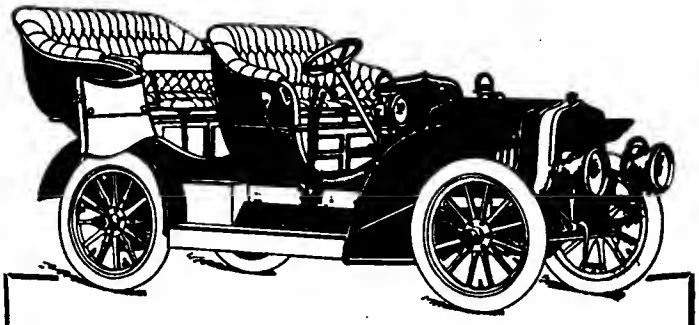


NORDYKE & MARMON CO.

(Established 1851,)

Indianapolis, Ind.

Member American Motor Car Manufacturers' Association.



POPE-TOLEDO,

Type XII, 35-40 H.P. Price, $3,500.

This car is absolutely the **fastest** and most **powerful** touring car ever built. Think of a **stock car** with regular gearing doing 76 miles an hour. Isn't this convincing that the power the **POPE-TOLEDO** motor develops is transmitted to the wheels? **Type XII** will carry seven people at thirty miles an hour, and its noiseless, smooth running engine will be scarcely more exerted than when idling.

Car has 54 pounds of total weight per horsepower, only 10 8-10 pounds engine weight per horsepower. Note this significant fact.

The wheel base is only 104 inches, yet the car seats comfortably seven people, with room to spare.

Double direct outside chain drive, of course, and a **transmission** made of specially treated steel of 225,000 lbs. tensile strength, the strongest, most efficient, smoothest running transmission ever constructed.

SEND FOR CATALOGUE OF

20-25 H.P., Double Side Entrance,	Price,	$2,800
30-35 H.P., Front Entrance,	"	$3,200
35-40 H.P., Double Side Entrance,	"	$3,500
50-60 H.P., Double Side Entrance,	"	$6,000

ORDER NOW FOR EARLY DELIVERY.

Be Sure the Name **POPE** is on Your Automobile.

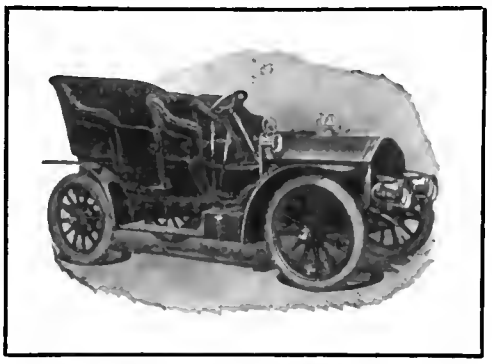
POPE MOTOR CAR CO.,

TOLEDO, OHIO.

NEW YORK CITY - - 1733 Broadway.
BOSTON, MASS. - 223 Columbus Ave.
WASHINGTON, D.C. - - 819 14th Street.

A.L.A.M.

Waltham Orient



Waltham-Orient, Model R, $2,250.

The Keystone of the Air-Cooled Arch

The Car of To-day Must do More than Look its Price. The high-priced, high-powered motor car is all right—it has its place and its purchasers but the *popular demand* is for a car of moderate price, reasonable speed that will be maintained up-hill as well as on the level road; that will arrive on time and return when expected; that will keep on the road and out of the repair shop; that can be operated economically and safely and does not require the employment of a professional chauffeur; that will remain in service winter as well as summer.

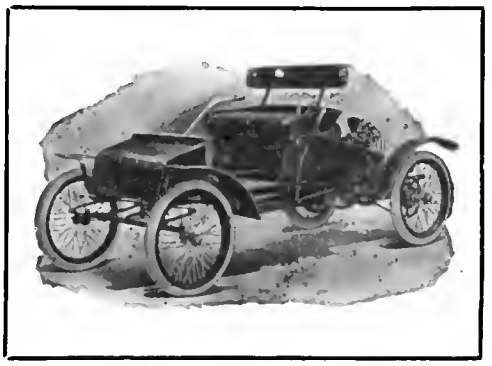
It must look well—ride well—run well—and keep well. That's where your pleasure comes in. You pay your good money for it and you have a right to expect it.

It is because it combines all of these important and necessary features that

THE WALTHAM-ORIENT IS THE LEADING AMERICAN CAR OF ITS PRICE.

Five Touring Models for 1906.

MODEL R, a Swell Special 20 H.P.	$2,250
MODEL N, 20 H.P. Tourist	2,000
MODEL L, 16 H.P. Tourist	1,750
MODEL M, 16 H.P. Runabout Detachable Tonneau	1,750
MODEL K, 16 H.P. Two passenger Runabout	1,600



Friction Drive Buckboard, Model BB, $400.

The Lowest Priced Motor Car Made in the World

A Greyhound can run a mile as rapidly as a five thousand dollar Racehorse, and he can course through the sand and up the cliffs where the thoroughbred cannot follow; which only goes to prove that price, bulk, weight and power rating do not necessarily mean the first to finish nor the one to get nearest the top of the mountain.

The Buckboard is the Greyhound of Motor Cars.

It makes no pretensions to being the thoroughbred horse, it has no five thousand dollar price tag on it, but is simply in a class of its own, equally a pleasure to its owner for it serves its purpose and serves it well.

WHY?

BECAUSE: It creates interest quicker than any car you can represent. It conflicts with no other sales. It makes Motorists out of Horsemen and Cyclists. It sells to owners of the "thoroughbreds" for daily service to the station, the country club or the seashore. It sells for Rural Mail Routes, Telephone and Telegraph Linesmen, Parcel Delivery, etc. It requires less time and trouble for each sale, and less subsequent expense and repairs. It has an operating cost less than one-third of any other motor car in the world. It will run 35 miles to the gallon of gasoline, and 100 miles to the pint of oil. It has a maximum power ratio of 40 to 1. No other car exceeds 18 to 1. It will climb 40 per cent. official grade and run 30 miles or more per hour. If you will write us we will send you forty other reasons.

We are alive for live agents ✎ Write for specifications and agency proposition
We will exhibit only at the New York, Chicago and Boston Shows

DISTRIBUTING DEPOTS:

NEW YORK—Waltham Mfg. Co., 1615 Broadway
BOSTON—Waltham-Orient Motor Car Co., Auto Arcade
PHILADELPHIA—Martin & Hart Motor Co., 215 N. Broad St.
PROVIDENCE—The Shepard Company
CHICAGO—Waltham Motor Car Co., 433 Wabash Ave.
LOS ANGELES—Diamond Motor Car Co., 2604 S. Main St.
BALTIMORE—Auto Supply & Storage Co., 1416 Madison Ave.
CINCINNATI—Queen City Auto Co., 538 West McMicken Ave.

Waltham Manufacturing Company

General Offices and Factory, ... WALTHAM, MASS., U. S. A.

Members of Association Licensed Automobile Manufacturers

Model "B" 1906

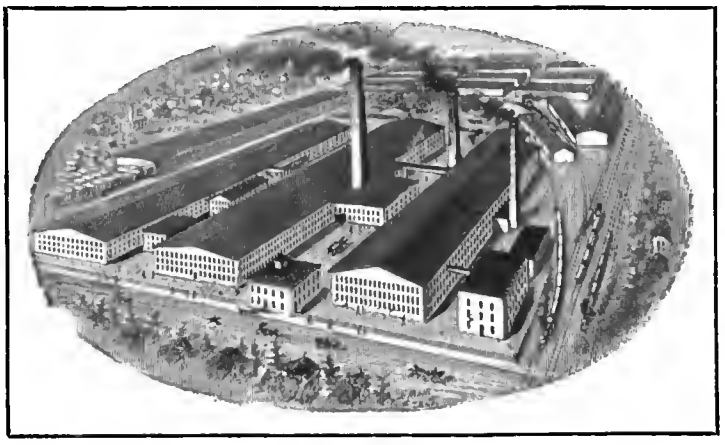
Harrison

Model "B" 1906

The maker has done the Experimenting The Purchaser gets the Perfected Car

Perfection in design attained after years of constant and intelligent experiment and study by our engineering department of how an automobile should be made. Nothing enters into the construction of the "Harrison" but the very best material obtainable—not what is merely said to be **the best,** but which **we know by actual test** to be **the best;** no part is neglected, each and every little detail that goes to make up the Perfected Car is given due attention.

PLANT OF
Harrison Wagon Co.
15 ACRES



Harrison Wagon Co.
ESTABLISHED 1850

SPECIFICATIONS

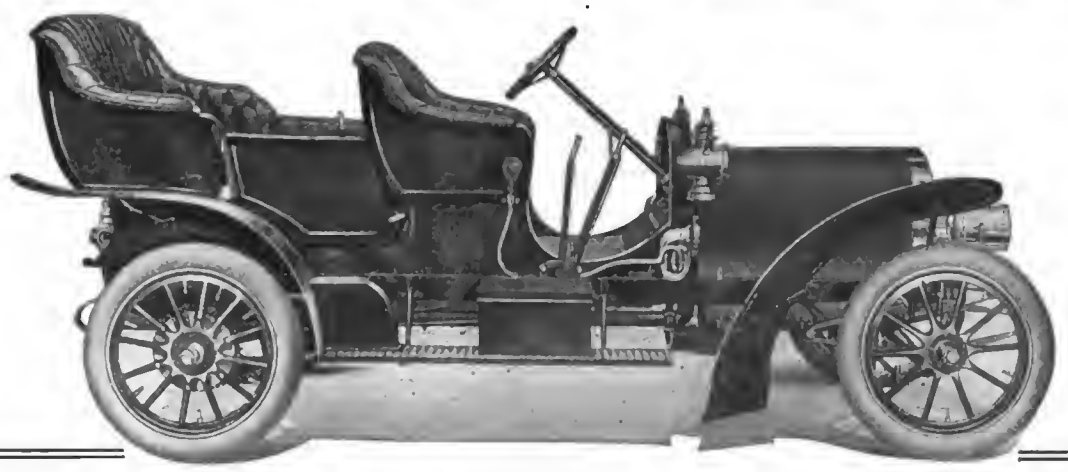
FOUR-CYLINDER, vertical, 35-40-H.P. Motor. Shaft Drive to rear axle; Special Sliding Gear Transmission; (three forward speeds and one reverse;) Special design expanding clutch; Double Brakes (internal and external) on rear hubs; Irreversible Worm Gear Steering; Starting device from seat (positive); Pressed Steel Frame, Timken Bearings; Semi-Elliptic Springs; Mechanically Operated Valves; Positive Force Feed Lubricator (Madison-Kipp); Ignition by Storage Battery and Jump Spark; Tubular Radiator. Wheel Base 115 inches, Tread 54 inches, Tires 36 x 4½, Speed 45 to 60 miles per hour.

Catalogue now in preparation—send us your name for our mailing list.

HARRISON WAGON CO.,
Grand Rapids, Mich., U.S.A.
(ESTABLISHED 1850)

See Exhibit N. A. A. M. Show, Coliseum, Chicago, Feb. 3d-10th.

THE MARION



IN designing the perfect car progress is towards the complex, but improvements are from the complex to the simple. The two questions before us are, first, what is best; and, second, what is simplest. If both can be found in one formthat form is certain to be the ultimate. The MARION contains both.

DETAILED SPECIFICATIONS OF "MODEL FIVE"

BODY: Beautiful design; wood, selected and thoroughly seasoned; double side-entrance, detachable tonneau, door width, 21 inches; seating capacity, five persons. Semi-divided front seat.

UPHOLSTERING: Finest quality French-finished hand-buffed leather, curled hair, and oil-tempered steel springs in seats and backs. Deep, full cushions, luxurious and very comfortable.

SPRINGS: Full elliptic, oil-tempered; 36-inch front, 38-inch scroll rear, 1 3-4 inches wide. Auxiliary leaves take severe blows

FINISH: The highest obtainable skill in using paints and varnishes of the finest quality produces a superb finish. Standard color, body light Brewster green, trimmed with black. Running gear, light Brewster green. Both having an appropriate fine carmine striping, giving a refined and handsome appearance.

FRAME: Pressed cold-rolled steel, consisting of two strsight side members and three cross members only. Gusset plates at every joint. Hot rivcted.

HOOD: Plain, triple-hinged, lifting from either side and removable, brass front grill, stationary.

WEIGHT: Fully equipped and ready for road, 2,100 pounds.

WHEELS: Artillery, Schwarz patent, second-growth hickory; 10-spoked front, 12 rear; diameter, 32 inches. Large ball bearings.

WHEEL BASE: 108 inches.

WHEEL GAUGE: 56 1-2 inches from center to center of tread.

TIRES: 4-inch, Clincher type, of any standard American make. Optional 3 1-2-inch Fisk heavy car type.

CONTROL: Right hand side. Steering wheel 16-inch, gear irreversible. Spark and throttle levers in wheel. Clutch and running brake operated by "push" pedals. Gear-shifting and emergency-brake levers at side.

BRAKES: Hand and foot, very powerful, in the form of bronze expanding shoes applying within drums fastened to spokes of wheels.

MOTOR: 4-cylinder vertical, placed lengthwise. "Marion" system of air-cooling. Mechanically operated valves; cam shaft and gear inclosed within crank case, of aluminum. All working parts carried by upper half of case; lower half removable without interfering with bearings. Starting crank fastened to frame and held in vertical position when not in use.

HORSE-POWER: 24-28. Range of speed, 150 to 1,500 revolutions per minute.

CYLINDERS: Special quality cast-iron, machined all over, giving absolute uniform distribution of metal. An important air-cooled feature. 4 1-2-inch bore; 4 1-2-inch stroke.

CRANK SHAFT: 4-throw; 1 3-4-inch diameter; machined from hand-forged billets of 25-point carbon steel. Five extra long bearings, the rear being 4 1-4 inches.

FLY WHEEL: Accurately turned, balanced, and finished, 19 inches in diameter; weight, 105 pounds; 6 fan-blade spokes.

FAN: Aluminum, 16 inches in diameter, Hess-Bright bearings. Driven by 1 1-4-inch flat belt.

LUBRICATION: Splash, four compartments in bottom half crank case holding approximately one gallon of oil, sufficient for 200 miles. Supply readily replenished by tank supported from crank case. Inspection glasses to ascertain height of oil.

MUFFLER Exceptionally large, noiseless, and without back pressure. Exhaust pipe 2 1-2 inches in diameter. Cutout operated by heel.

IGNITION: Jump spark, 4-unit coil, 3-cell, 6-volt storage battery, good for 1,000 miles, carried in box in running board. Plugs located in intake chamber, fouling impossible.

GASOLINE CAPACITY: 17 gallons. Copper tank under front seat.

CLUTCH: In transmission case; multiple disc; non-adjustable and running in oil. Gradual but positive engagement.

TRANSMISSION: Sliding gear, 6-pitch, giving three forward speeds and reverse. Secondary shaft does not revolve when driving on top gear.

DRIVE: Double side-chain; large sprockets; 25 and 40 teeth.

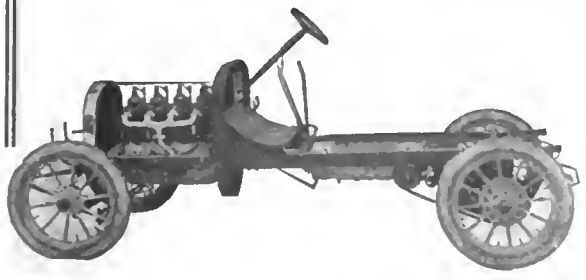
ROAD CLEARANCE: 10 inches. This extreme is only possible by the divided chain drive.

DASH: Cast aluminum, oval.

EQUIPMENT: 2 acetylene headlights, 1 acetylene gas generator, 2 oil side lamps, 1 oil tail lamp, 1 French horn, reflexible tube; a complete set of tools and parts carried in accessible toolbox under rear of frame.

ACCESSIBILITY:

SIMPLICITY: THROUGHOUT.



FOUR CYLINDERS AIR-COOLED

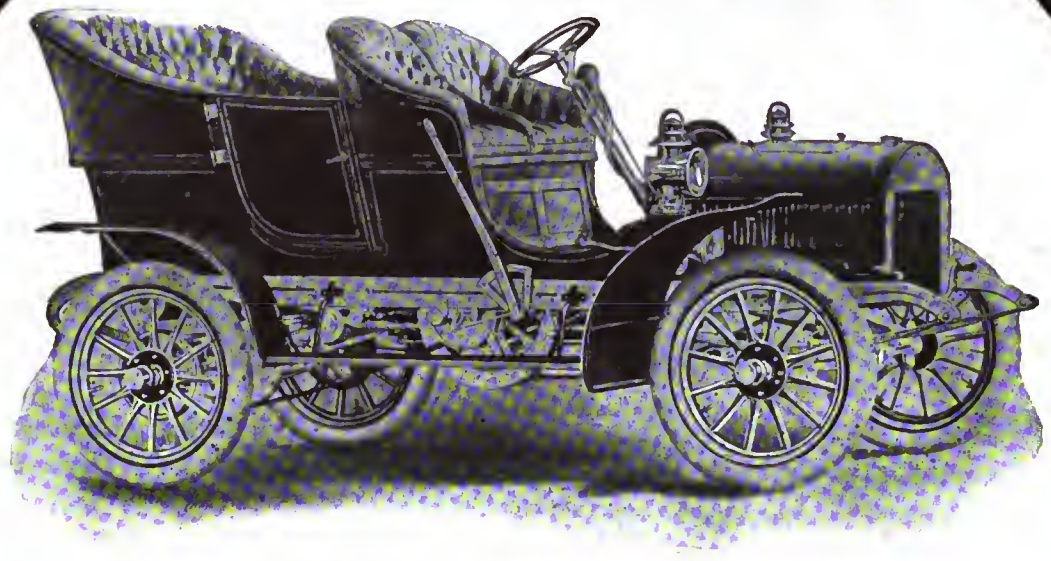
Model 5—28-H. P. Touring Car . . . $2,500
Model 2—16-H. P. Touring Car $1,500
Model 4—16-H. P. Physician's Runabout, $1,250

Look us up at New York and Chicago Shows. We have a few attractive agency propositions still open.

MARION MOTOR CAR COMPANY, Indianapolis, Ind.

Wayne

One of Our 1906 Models



WAYNE Model C $1,250

MOTOR, double opposed, of the standard Wayne type, with cylinders 5¼ x 5. Engine is hung under the chassis frame and develops by brake test 20 H.P. *This is the same type of car which proved so successful last season, brought up-to-date and with all new improvements.* TRANSMISSION is of the planetary gear type with chain drive. CONTROL is by a single lever which engagee the high speed clutch and reverse. The elow speed and brake are controlled hy foot pedals. TIRES 30 x 3½. EQUIPMENT, complete set of toole, eide oil lamps, tail lamp and horn.

Model F, 4-cylinder car, cylinders 5½ x 5. 50-H.P., seating 7 people. Price $3,500.
Model K, 4-cylinder, 5-passenger touring car. 35-H.P. Sliding gear transmission. Price $2,500.
Model B, 4-cylinder, 5-passenger car, 24-28-H.P. Sliding gear transmission. Price $2,000.
Model H, Two-passenger runabout, double opposed motor under hood, direct drive, 14-H.P. Price $800.

The Wayne Agent can supply a high-grade car at any price his customer may demand.

We have the BEST—car for the Customer
—proposition for the Agent

Write for Agency arrangements and descriptive matter if you can't wait till the Shows.

NEW YORK AND CHICAGO SHOWS, OF COURSE,
SIXTY-NINTH REGIMENT ARMORY, NEW YORK.

WAYNE AUTOMOBILE CO.
Detroit, Michigan

FRANKLIN

Type D. 4-cylinder Touring Car

Shaft drive. Sliding gear transmission. Three speeds and reverse. New and perfect disc clutch. Four cylinders. Air-cooled. Side doors. 5 passengers. 100-inch wheel base. 1,800 pounds. 20 "FRANKLIN horse-power." 45 miles per hour. Full head and tail-light equipment. **$2,800** F. O. B. Syracuse.

This is the most surprising car on the market. Nobody can believe what it will do until he tries it. No "30-horse" can do more under any conditions; and no car of any power or price---built anywhere---can do more with five people on American country roads.

Its perfect cooling, light-weight and non-jarring qualities enable it to maintain speed indefinitely, and over poor and hilly roads; and make it an extraordinary climber.

It belongs in the "big car" class; has all the comfort, roominess and style; without the weight danger and excessive useless cost.

Franklin cars are like diamonds! They can never become old-fashioned. They are built on principles that are becoming more widely recognized and accepted. They are growing more and more into vogue every day.

Last year's Franklins have proven so successful that imitations of them will appear next year—and for many years in many other cars. Even a second-hand Franklin is a year or two ahead of the times.

Another point—a most important one—Franklins are made, in every part, of the most suitable and durable materials, and are put together in the most substantial and effective manner that money can pay for. They will not only remain in style but they will continue to do the work.

The first Franklin ever put on the market in 1902 is running to-day, and running satisfactorily. A Franklin's years of active usefulness have never been measured.

That is why a second-hand Franklin is a first-rate property, and commands more money than many first-hand cars of equal pretensions. The value is there; and it is known.

FOUR MODELS FOR 1906.

4-cylinder Runabout. **4-cylinder Touring Car.**
4-cylinder Light Touring Car. **6-cylinder Touring Car.**

We exhibit at Madison Square Garden, New York January 13-20, 1906.

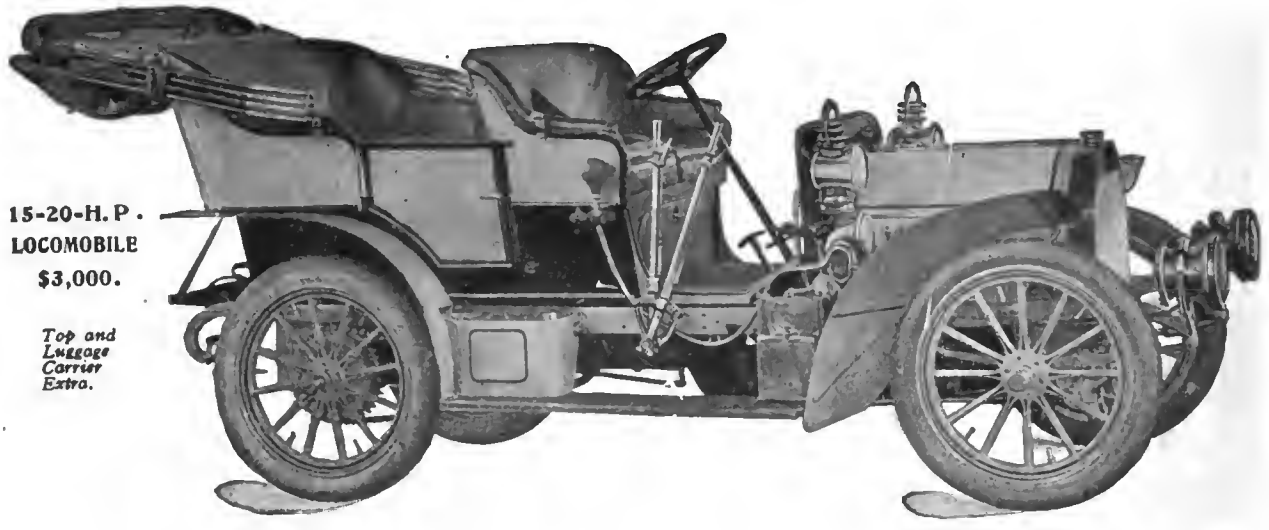
H. H. FRANKLIN MFG. CO., Syracuse, N.Y. - M.A.L.A.M.

Locomobile

"EASILY THE BEST BUILT CAR IN AMERICA"

15-20 H. P., $3,000 **30-35 H. P., $5,000**

BOTH WITH COMPLETE TOURING EQUIPMENT.



15-20-H. P. LOCOMOBILE $3,000.

Top and Luggage Carrier Extra.

TYPE "E" LOCOMOBILE—15-20 H.P.

Price: $3,000, ready for touring.
Equipment: Five brass lamps, horn, tire carrier, set of tools, extra parts, jack, lock box for tools and lubricants
Body: Double side-entrance, seating five, extra wide doors, fitted with top irons; color and striping optional.
Motor: 4-cylinder, 3⅞-inch bore, 4½-inch stroke.
Camshafts: Hardened forgings; all cams integral.
Crankshaft: Machined from one solid forging.
Lubricator: Large mechanical lubricator.
Carbureter: Automatic, with balanced throttle valve.
Governor: Centrifugal type, prompt and positive in action.
Ignition: Make-and-break.
Magneto: Low tension; our own design and manufacture.
Aluminum Pan, placed underneath the machinery.
Front Fenders: Have inner wings extending to bonnet.
Clutch: Cone type, with ample surface.
Transmission: Three forward speeds and reverse.
Drive: Double side chains.
Double Universal Joint: Between clutch and transmission.
Running Brake: Large and powerful, metal to metal surfaces.
Emergency Brakes: Internal expansion type, metal to metal.
Brake and Sprocket Drum: Bolted to each rear wheel spoke.
Axles: "I" section, hand-welded axles.
Running Boards: Rubber covered and brass bound.
Tires: 35 x 4 inches, on all four wheels.
Wheel Base: 93 inches
Control: Gas and spark levers on steering wheel.

TYPE "H" LOCOMOBILE—30-35 H.P.

Price: $5,000, ready for touring.
Equipment: Five brass lamps, horn, tire carrier, set of tools, extra parts, jack, lock box for tools and lubricants.
Body: Double side-entrance, seating 5 to 7 fitted with top irons; extra wide doors; color and striping optional.
Motor: 4-cylinder, 4½-inch bore, 5¼-inch stroke.
Camshafts: Hardened forgings; all cams integral.
Crankshaft: Machined from one solid forging.
Lubricator: Large mechanical lubricator.
Carbureter: Automatic, with balanced throttle valve.
Governor: Centrifugal type, prompt and positive in action.
Ignition: Make-and-break.
Magneto: Low tension; our own design and manufacture.
Aluminum Pan, is placed underneath the machinery.
Front Fenders: Have inner wings extending to bonnet.
Clutch: Cone type, with ample surface.
Transmission: Three forward speeds and reverse.
Drive: Double side chains.
Double Universal Joint: Between clutch and transmission.
Running Brake: Large and powerful, metal to metal surfaces.
Emergency Brakes: Internal expansion type, metal to metal.
Brake and Sprocket Drum: Bolted to each rear wheel spoke.
Axles: "I" section, hand-welded axles.
Running Boards: Rubber covered and brass bound.
Tires: 34 x 4½ inches.
Wheel Base: 106 inches.
Control: Spark and gas levers on steering wheel.

THE *Locomobile* CO. OF AMERICA, BRIDGEPORT, CONN.

NEW YORK, B'way & 76th St. | Member Association Licensed | BOSTON, 15 Berkeley St.
PHILADELPHIA, 240 N. Broad St. | Automobile Manufacturers. | CHICAGO, 1354 Michigan Ave.

16-26

PIERCE

PIERCE

This is the Great Arrow Victoria Tonneau, 40-45 H.P., with semi-enclosed top. Price, without top, $5,000. Semi-enclosed top, $350 extra. Cape top, $200 extra. Folding glass front, $50 extra.

ONE convincing proof of the excellence of Pierce cars is the fact that they appeal most to the most mechanical minds. An automobile is a machine. The more a man understands about the principles of mechanics the better he appreciates the way in which the Pierce Arrow is made.

The initial cost of a Pierce Arrow is greater than that of any automobile made in this country, but the price seems low when compared, not only with the small cost of maintaining, but with the long time of service given.

Pierce Arrows are never out of date as far as effective service is concerned.

Catalogue and description mailed on request.

The George N. Pierce Company

Buffalo, N. Y.

MEMBERS ASSOCIATION LICENSED AUTOMOBILE MANUFACTURERS

PIERCE ARROW EXHIBITED IN MADISON SQUARE GARDEN ONLY

List of Dealers

Boston	J. W. Maguire Co., 745 Boylston St.
Chicago	H. Paulman & Co., 1321 Michigan Ave.
New York	Harroids Motor Car Co., Broadway, 58-59th Sts.
Pittsburg	Banker Bros. Co., Baum & Beatty Sts.
Baltimore	Southern Auto. Co., 2021 Maryland Ave.
Buffalo	The George N. Pierce Co., 752 Main St. (Retail)
Detroit	J. P. Schneider, 189 Jefferson Ave.
Denver	The George N. Pierce Co., 1643 California St.
Hartford, Conn	The Miner Garage Co., 120 Allyn St.
Houston, Tex	Hawkins Auto. & Gas Engine Co.
Kansas City, Mo	E. P. Moriarty & Co., 1612 Grand Ave.
Los Angeles	Bush & Burge, Cor. 7th & Main Sts.
Louisville	The Zorn-Strauss Co., Inc.
Milwaukee	Hibbard Automobile Co.
Ottawa & Montreal	Wilson & Co., 142 Bank St.
Oakland, Cal	The George N. Pierce Co., 1013 Clay St. (Wholesale)
Philadelphia	Foss-Hughes Motor Car Co., 201 N. Broad St.
Portland, Me	J. A. Dowling.
Providence	The Shepard Company.
Rochester	U. S. Automobile Co., 21 Plymouth Ave.
San Francisco	Mobile Carriage Co., Golden Gate Ave. & Gough St.
Saratoga Springs	W. L. Hodges, 16 Woodlawn Ave.
Scranton, Pa	Standard Motor Car Co.
Springfield, Mass	E. R. Clark Auto. Co., 117 Lyman St.
Syracuse	Amos-Pierce Auto. Co., 109 S. State St.
St. Louis	Western Auto. Co., 4701 Washington Blvd.
St. Paul	C. P. Joy Auto. Co., 368 Minnesota St.
Toronto	Auto. & Supply Co., Ltd., 24 Temperance St.
Troy, N. Y.	Troy Auto. Exchange, 22 Fourth St.
Utica, N. Y.	Utica Motor Car Co.
Geneva, N. Y.	J. A. Place.
Portland, Ore.	H. M. Covey.
Seattle, Wash	Broadway Auto. Co.